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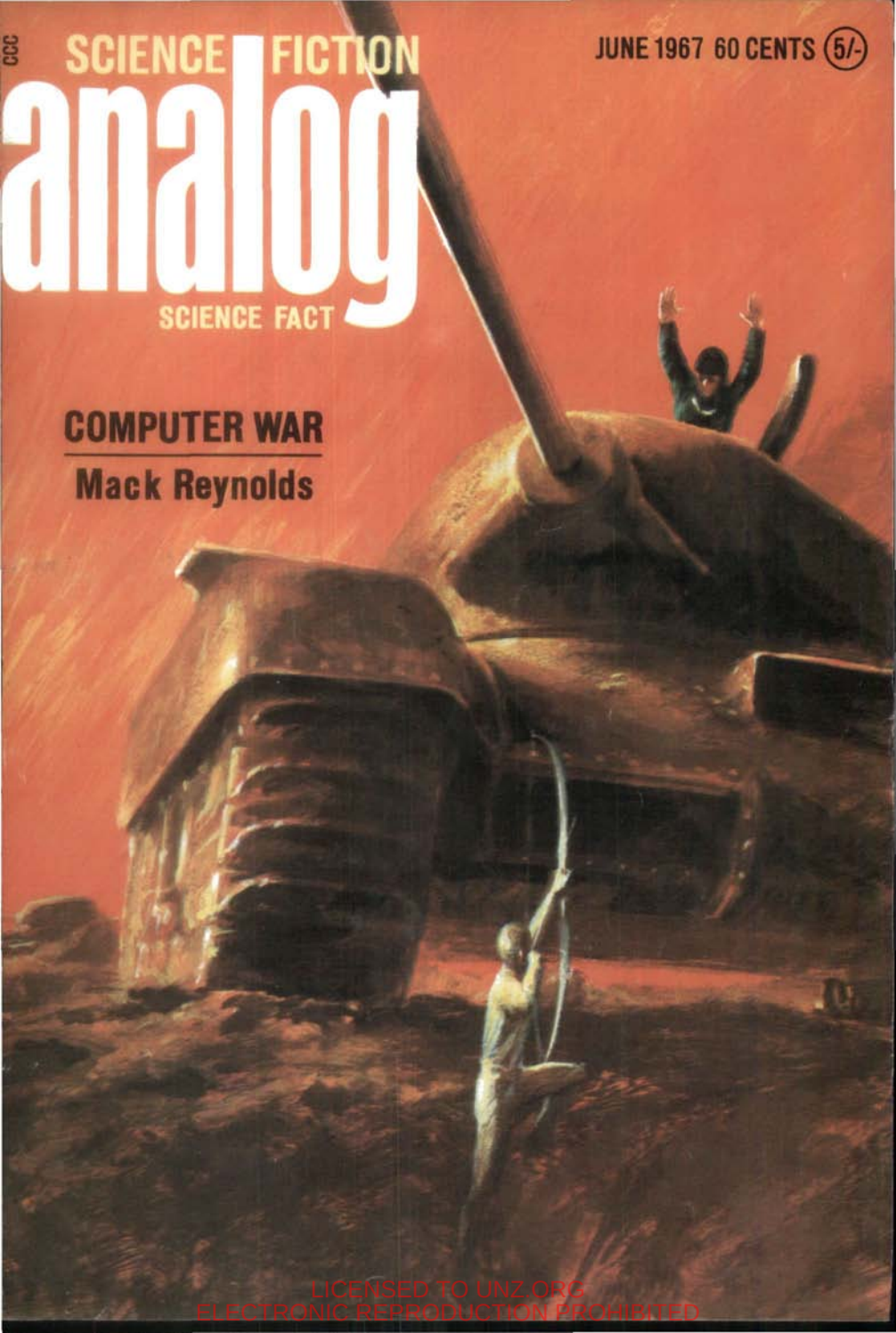

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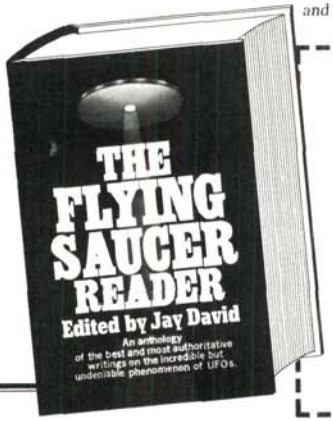


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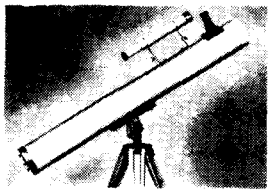

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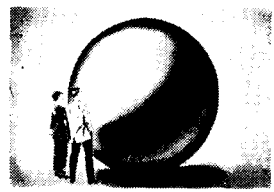

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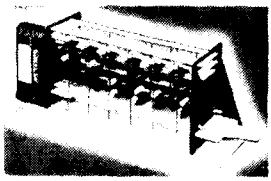

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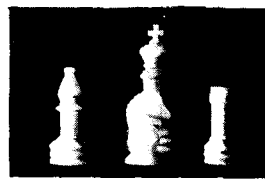

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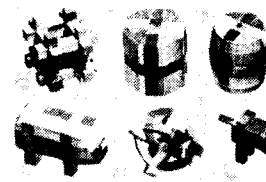

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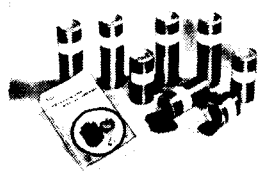

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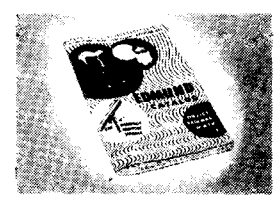

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# *Interstellar Communications*

*An editorial by*
*John W. Campbell*

What with my own looking around, plus items sent in by my "100,000 spies"—you readers, situated all over the Earth, who seem to feel that I ought to be informed about everything going on everywhere—I've now read a vast collection of books, essays, journal articles, and popular-magazine articles on the subject of interstellar communications.

They've been done by major scientists and scientific groups—men who, twenty-five years ago, wouldn't have considered for a moment having their good scientific names associated with any such science-fantasy nonsense.

These books, articles, et cetera, have uniformly been distinguished by a remarkable lack of imagination, extreme stodginess, and an ingrown arrogance of ignorance. A generation ago, rational speculation on the subject of extraterrestrial life was confined exclusively to the pages of science fiction; now that Professional Science has gotten around to considering the subject, they've added some useful ideas. Not many, really, but some.

The error all those books and articles make is to assume *we now know all the possible modes or methods of information and matter transport possible.*

That assumption—utterly without proof—is the basis of what I call the Arrogance of Ignorance.

Every one of the Professional Science group of books and articles has flatly denied the possibility that we, *or any other race in the Galaxy* could make actual interstellar flights. The absolute, final, conclusive proof of the forever-impossible involved is, of course, the relativistic mass-increase, and the $E = Mc^2$ formula that limits the possible propulsive energy available to accelerate and decelerate an interstellar cruiser. If one half of the total take-off mass of an interstellar rocket were converted to pure propulsive energy, under the relativistic laws, the remaining one half could be accelerated—even with 100% efficient conversion of that energy to kinetic energy of the ship



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—only to a speed close to, but below the speed of light—the speed at which the remaining half-mass had, by relativistic mass-increase, doubled.

The problem of decelerating, exploring the new star's planetary system, if any, of re-accelerating and again decelerating to reach home again would bring in the *real* "Law of Diminishing Returns"! It'd be a case of ½ x ½ x ½ x ½ — X, where X represents the energy required for life-support on the round trip, and for exploration activities while Out There.

And all that is at well below light speed. Light speed, Science *knows* cannot be exceeded. Therefore, no message, signal, or object can get to even the nearest star is less than 4.5 years.

Q.E.D Ad infinitum. Forever. Never.

For a bunch of semi-evolved, high-order apes, we humans very genuinely are doing a good job, and making good progress. We've had experimental, organized Science for about three centuries now, and now we're in a position to say that These Things Are Forever Impossible, because we know so much about the universe. Why, we've been studying it for six or seven lifetimes!

*Our* lifetimes, that is. A race with a life span of six hundred years or so might consider us slightly juvenile. The last time the Sun swung around the center of gravity of the Galaxy, when the Solar System was down at the other end of the local star cloud 100,000,000 or so years ago, dinosaurs dominated the planet, and the night skies were full of stars and nebulae we've never seen, and *we* never will. (Our descendants aren't apt to be what we'd call "human" by the time Earth meanders down that way again.) The Solar System happens to be moving through a stream of star-traffic going in another direction at the moment; in another megayear or two none of the current crop of night-sky stars will be visible. Most of those we see flaming brilliant in our skies will, of course, have burned out in the next megayears anyway, but the angle of our paths will carry us beyond visibility anyway.

It's a shame the first human artists, 100,000 years ago, didn't scribe, on some cave wall, a star map of the heavens he saw. Because those people were all hunters, not agriculturalists, they hadn't yet developed astrology for forecasting the weather in the future, so they weren't interested in star maps. (A subsistence level people doesn't waste time, effort and energy on things that aren't useful. They can't afford to.) So magic drawings for controlling the animals to be hunted were needed and important, but star maps were not useful.

The astronomers of today would give a couple of 200-inch telescopes, and half a dozen Baker-Nunn cam-

*continued on page 174*



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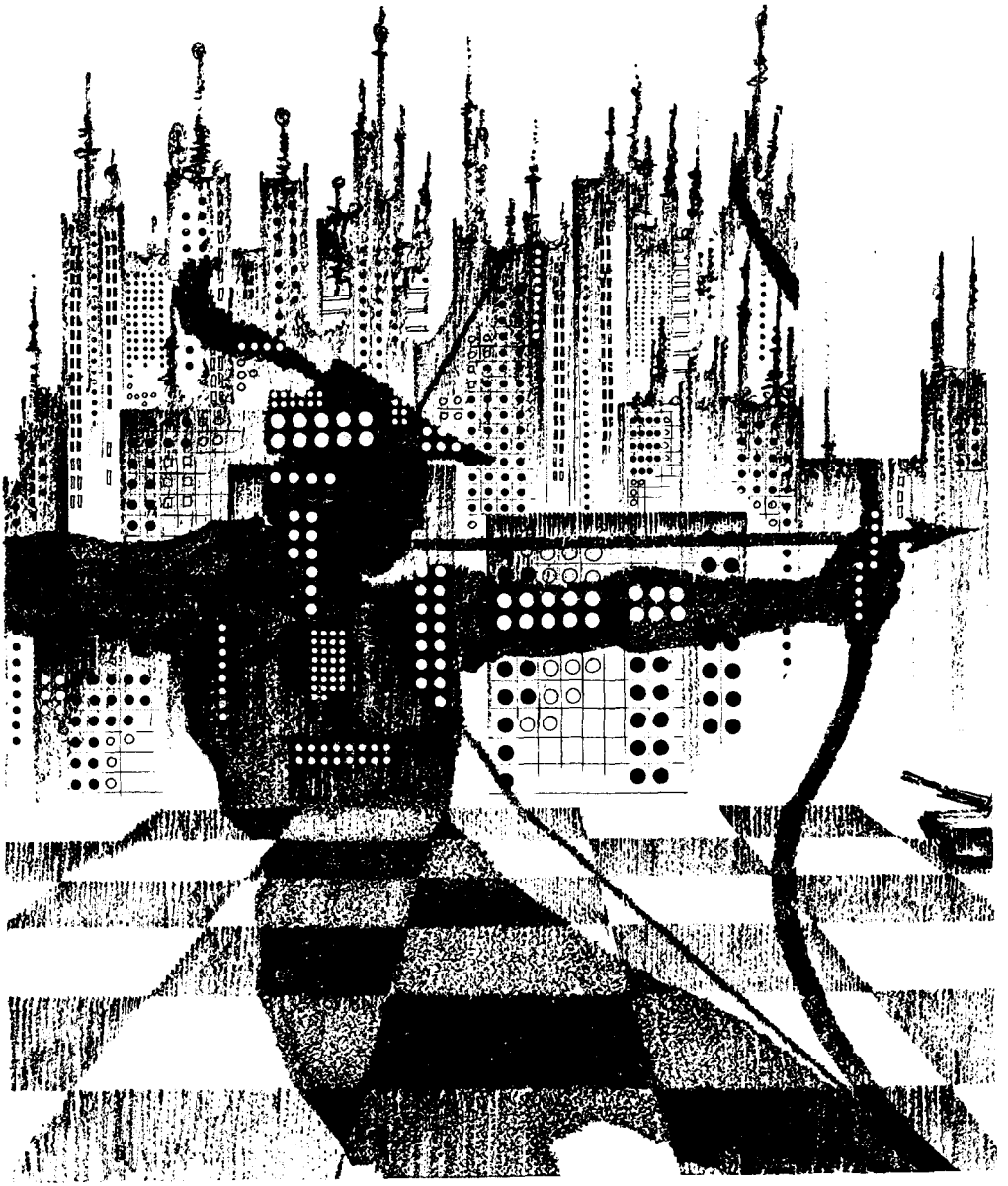



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# *Computer War*

*Part I of II*

*The great computers—which would, of course, run the war—showed unqualified victory was certain. But computers give the logical conclusions from given data and postulates. The other side had some other postulates, and weren't even logical!*


## *Mack Reynolds*

*Illustrated by Kelly Freas*

I

Number One said: "Co-aides, we are in session."

The murmuring dropped away to be replaced by respectful silence.

With the others, Ross Westley gave full attention to his ultimate leader. He had read somewhere that eventually a person's character was reflected in his face. Were it true,



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then Number One was overly fond of the sensual pleasures as well as power. As a young man, he must have been quite handsome; now at approximately seventy, his face had gone gross—his smile, when it did appear, humorless. His voice, even when addressing these, his closest associates, was empty of inflection save that of command.

It was said, Ross knew, that since the cruelly suppressed revolt of Maximilian Barker, for years Number Two in the Alphaland hierarchy, the Presidor had only one intimate. His vices, did they exist, and his face proclaimed they existed, were enjoyed in solitude. It was said he was a connoisseur of vintages, in spite of the United Temple's ban on alcoholic beverages—a gourmet with a staff of half the best chefs on the planet. It was even said he took tobacco, in some form or other.

Number One said now: "Co-aide Graves."

Graves was not a member of the Central Comitia and nervously shuffled his papers in this august gathering.

He said, "The computers reveal that Betastan could be reduced with a short, sharp conflict lasting 2.35 months, plus or minus 3.8 days. The cost in casualties would be 17,900 killed and 310,000 wounded, plus or minus 293 killed and 7,021 wounded. The cost would be 127,895,367,-400 gold Alphas, plus or minus 6,-730,412."

Number One looked at his Deputy of Finance, who indicated unhappiness.

"Co-aide Matheison?"

Deputy Matheison jiggled a stylo. He was obviously in awe of his leader and his voice came in apology. "It seems fantastically expensive for a war lasting two months. Your Leadership is familiar with the state of the treasury."

Marshal of the Armies Ropert Croft-Gordon, without being called upon, said heavily, "The more mechanized modern warfare becomes, the more expensive. Firepower increases geometrically, every decade, but so does the cost of keeping a man in the field."

Number One looked at him. He said, "We shall hear from you shortly, Marshal Croft-Gordon."

The marshal flushed.

Number One said, "Co-aide Wilkonson, what does our geopolitician think of the project?"

The nattily goateed Wilkonson was at home in any gathering, from undergraduate students to the highest echelons of the government of his land.

"The Presidor is already cognizant of the situation. Our planet is divided into two major land areas and two major powers, Alphaland and Betastan, and twenty-three minor powers. Geographically, we almost duplicate each other, and, as all know, down through history this has led to neither being able to dominate the smaller nations. There has been too delicate a balance. If Alphaland



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was able to bring its rival to its knees, then the world government which Your Leadership foresees would become an immediate reality. It is doubtful that even a confederation of the minor powers could stand before our glorious march."

Temple Bishop Stockwater murmured unctuously, "Amen."

Ross Westley, conscious of his comparative youth, seldom spoke in these gatherings. Now he shifted in his chair.

Number One looked at him. "And our Deputy of Propaganda?"

Ross said unhappily, looking at the last speaker, and then over at the computer expert, "The figures deal with a quick war between Alphaland and Betastan. What would happen if some of the neutrals, seeing the handwriting on the wall, entered on the side of the enemy?"

"Well, Co-aide?" Number One said to Graves.

Graves shuffled his papers again. "Of the twenty-three, the computers reveal that only twelve could mobilize in time to affect the conflict. Of these twelve, the computers report that four would favor our cause, four favor that of Betastan, and four remain neutral. None of these twelve are strong neutral powers. If the Presidor would like more details . . ."

"Not now."

Number One sat and thought. It was a long-time habit of his. Not a sound came from his associates. The story was that, almost twenty years ago, a deputy had gone into a coughing spasm during one of the Presidor's retreats into contemplation and had never again attended a command session, losing his office within a matter of weeks.

He said finally: "And our Academician of Socioeconomics?"

Academician Philip McGivern was a very old man, his beard almost identical to that of Wilkonson but a dirty gray rather than black.

He stood to speak, although none of the others had. McGivern was an Old Hand and bore no awe for Number One, they had been through too much together. He looked full into the face of the other and said: "You are acquainted with my opinions, Your Leadership. I assume you merely wish me to fill them in for these, our co-aides. We have reached the crux of which I warned a full ten years ago. The age of the computer is upon us. Ultimate automation. Our productive capacity alone is sufficient to supply the whole planet with manufactures. Our own land is glutted with them and industry is slowing, sometimes shutting down. As our commodities become increasingly cheaper, tariff walls are erected abroad to support the more expensive products of homeland industries. A full sixteen minor countries have all but completely forbidden imports from Alphaland.

"If the present socioeconomic system of Alphaland is to continue, we must have both foreign markets and sources of raw materials. If this



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war is successful, and world government achieved, our only policy can be one of reducing the economies of Betastan and all the neutral lands to pastoral societies. In the future, they can supply agricultural and mineral needs, we must supply all industrial products."

The old man finished significantly. "Otherwise, we shall have an industrial crisis within three months, plus or minus 3.2 days." His eyes turned to Graves. "According to my own computers."

Ross Westley stirred in his seat again.

Number One looked at him bleakly. "You seem restive, Co-aide."

Ross nodded. "Your Leadership, I know my position isn't usually involved in the preliminary planning stages, however, this is going to have to be sold not only to the rest of the world, save Betastan, but to our own people as well. In spite of the computers predicting an easy victory, those over 300,000 casualties are going to be real people, our citizens. The civil war hasn't been over very long and the people are horrified at the idea of more war. And to sell them a war of aggression at this stage . . ."

Number One interrupted. "My people will go where I lead them."

"Yes," Ross nodded unhappily, "but it will not be a simple task for those of us who have to point out the path."

Number One slumped back into thought.

Afterwards, Ross Westley took a pneumatic back to his official quarters. He moved less than briskly through the outer offices—the desks and office machines that composed the inner circle of the Commissariat of Information.

His staff, knowing his mood, didn't intrude. Suddenly he was brought up short, his usual way being barred by a new, gleaming computer of exotic design. Ross Westley stopped and glared at it.

He snapped at one of the senior secretaries, "What in the name of the Holy Ultimate is this!"

She looked mildly shocked at his language, and inadvertently shot a look over her shoulder but then caught herself in the realization that there would be no Temple monks in the preserves of the Deputy of Propaganda. However, Jet Pirincin sometimes doubted that her chief was as devout as his high position would call for.

Jet said, apologetically: "The technicians are still installing it, Co-aide Deputy."

"I said, 'What the hell is it?' It's at the point where I can't get to my own office through the curd this place is littered with."

"Yes, Co-aide Deputy Westley," Jet said. She was mildly surprised. Ross Westley was usually on the easy-going side, as upper echelon co-aides went. "As I understand, sir, it is a new development adapted to our commissariat which, by scanning any printed page, can give a



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plus or minus percentage of two, on the effect of the publication on the public."

He looked at her sourly, "What's new about that, Co-aide Pirincin? We've got a bank of machines that'll handle that sort of jetsam."

"Yes, Co-aide Deputy. I wouldn't know, Co-aide. The technicians know all about it. It's some new departure."

Ross snorted and sidestepped the new equipment to continue to his office. He muttered, "Why not turn the whole nardy government over to these technicians? They're the only ones who know what's going on."

Jet Pirincin stared after him, more than mildly surprised now. Suppose there had been a Surety co-aide about. Admittedly, Deputy Westley was a member of the Central Comitia, though a junior one, but you simply didn't say such things. It amounted to criticism of the workings of the government. She shook her head. Ross Westley, she was of the opinion, was a pleasant enough boss to have, and even almost handsome in a craggy sort of way, but she decided it was just as well that his early training to be a teacher of history was thwarted. What might he have taught his students?

Ross growled at the door which opened automatically before him. It had been a long-time irritation. The mechanism didn't read his *mind*, it read his physical presence. Suppose his desire was to approach the door but not go through it. Suppose his resire was to come up to the door and press his ear against it, so as to eavesdrop on someone within. The damned door wouldn't let him! It opened, willy-nilly, upon his coming in proximity.

He grunted sourly. At least it was an improvement over the doors of his youth. They couldn't read individuals and opened on the approach of anyone at all!

He realized he was in a miserable mood. He didn't like the developments of the Central Comitia session this afternoon. He didn't like them at all. To the extent possible, he had been fighting the trend, but the Deputy of Propaganda was a low man on the totem pole and often not called upon even to attend inmost staff sessions.

He sat and stared moodily and unseeingly at his orderbox. Finally he flicked a finger to activate it and said: "Is there anything on my desk?"

A voice answered him in detail and he said: "Switch it to Assistant Deputy Bauserman and cut all calls to me for the next two hours."

"Yes, Co-aide."

He sat for a moment, then surreptitiously flicked a small stud on the ring on his right little finger, with the thumbnail of his left hand. He looked at what seemed to be a star sapphire set in the ring. It gleamed no more than ordinarily.

Evidently, he decided, his complaint of a month or so ago had brought results. If the highly de-



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veloped little mop he had in the ring was effective, his quarters were no longer bugged. Rank had its privileges, even in the Free Democratic Commonwealth of Alphaland.

He came to his feet, went over to what appeared to be a closet door and opened it. The personal pneumatic car inside was strictly a one-man affair. He wedged into it, closed the door behind him, threw the vacuum control, and began dialing his destination. He was too oriented to the transportation method to be distressed by the sudden drop-away and then the surge of acceleration.

The car came to a halt and flicked the green for him. He threw off the vacuum control, opened the door and stepped forth. He was at the entry port of one of Alphacity's more popular parks. He considered momentarily, but then threw the control which would send his car to a nearby parking area. His station would have allowed him to monopolize the place indefinitely but of recent months Ross Westley was, possibly unbeknownst to himself, becoming unhappy about many of his prerogatives.

He walked toward the park center, as though heading for the famed Interplanetary Zoo, but managed to check, two or three times, whether or not he was being tailed. So far as he could see, he wasn't.

He started for his true destination.

Tilly Trice looked up at his entrance into her shop. She winked, perkily, and blew him a kiss, but didn't get up from her work.

She was, he told himself once more, the most unlikely young woman over whom a powerful and wealthy governmental head could be expected to make himself a cloddy. She was tiny. Her figure was that of a teen-age boy, rather than one of the current TriDi sex symbols. Her face was pert, rather than pretty. Admittedly, her features were clean, her carriage soldier-straight, her voice a dream of gentility.

But by no stretch of the imagination would any historic period of man's evolution, whether on Mother Earth, or out here in the stars, have pinned the label of glamour girl on Tilly Trice.

At best, she would have made the grade as the famed girl-next-door—a boy's best pal.

She was fiddling with some red leather and a pot of glue. And it came to him that it was probably real leather. He wondered from whence she imported it. Holy Ultimate, from Earth? The space freight alone! But then, of course, Tilly Trice's customers were the most ultra-wealthy the planet provided and were not of Alphaland alone. In fact, she boasted clients in every nation of this world.

She said, that faint mockery in her voice, "Hi, Co-aide."

"Don't call me that." he growled.

She went, "Tu, tu, tu. Nardy temper today."



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"Don't swear," he growled. "It doesn't become a half pint. It sounds incongruous, a four-letter word coming out of your mouth."

"Nardy," she said righteously, "is a five-letter word. I know some four-letter ones. You want to hear them?"

"No. Number One held another session today. Graves had the final computer returns."

She dropped her light air. "Oh," she said.

"They were as bad as I told you they would be. Graves gives Betastan a little better than two months."

"Oh, he does!" she said tartly, her air suddenly that of a defiant child.

He eyed her unhappily. "Listen, Till, what do your own computers carry on this? You've had enough material turned over to you to program . . ."

She was shaking her head to silence him. She got up and approached one of the dusty bookshelves that lined the shop's walls. She stared unseeingly at a short row of German language first editions.

Tilly shook her head again. "I won't give you any jetsam, Rossie. We have a few computers in Betastan. But nothing like the number you have here. None of them have been directed toward the military. Even after my warnings came through."

"But why not!"

She looked at him. "I think it's a bit difficult to explain our way of thinking to someone with your own background, Rossie. But let me use an example. Back in the very old days on Earth, when the nations were perpetually arming, do you remember their terminology? They were all expending the gigantic sums involved in *defense*. It was a gobbledygook term. Nobody ever spent money on *offense*, it was always defense. By the oldest traditions of our race, the oldest teachings, he who lives by the sword, dies by it. And over and over again it was seen that those nations which built large military machines sooner or later found occasion to use them. Sometimes because they were attacked, more often they found occasion to attack—by flimsy excuse, or otherwise."

"What are you driving at?"

She sighed. "We're trying a new theory in Betastan."

"It's doomed to failure, you cloddies! What do you think I've been acting the traitor for these past months? It's not just Betastan. Don't you realize that if this war is lost, the whole planet eventually comes under the domination of Number One?"

She raised her eyebrows at him. "The war isn't lost."

He gave up.

He looked about the small store in despair. Finally, he said, "You know, Till, I've sometimes wondered how you manage to transmit the information I've been giving you. I've known you for five years. For two of these I've known you to be connected with Betastan espion-



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age. For the past eight months I've been feeding you the innermost secrets of Number One's private sessions with his deputies and closest co-aides."

She tinkled laughter, but he went on, his forehead wrinkled. "I've gone to the trouble of checking out some of the methods our Commissariat of Surety uses to intercept espionage messages, and they're elaborate far beyond my first conception. Why, Deputy Mark Fielder has more computers devoted to that problem alone than I have in my whole commissariat."

Tilly Trice said wickedly, "I shouldn't trust you with this, Rossie, since you're not very good at keeping secrets. However . . ." She reached down and picked up a card from her desk.

". . . I just mail a postcard through your post office."

## II

The Presidor of the Free Democratic Commonwealth of Alphaland —known as Number One throughout the hierarchy—relaxed once he had passed through the doors of his private chambers. Perhaps slumped would have been the better term.

He headed for the moderately large living room which was his true home, and for the bar which sat in the corner there.

"This early in the day?" a voice said gently.

Pater Riggin sat in a leather armchair near the fireplace. He had evidently turned the thermostat down to the point where a fire was desirable. It was, Number One thought wryly, perhaps his life-long friend's sole indulgence, sitting before the embers of a primitive blaze.

From the bar, he said, even as he poured a double shotglass of Mataxa, imported from far Earth, "I sometimes wonder at the advisability of my having given you a key to my rooms. Sooner or later, in one of your typically absentminded moments, you'll either lose it, or, in one of your more idealistic spells, you'll decide that the Presidor of Alphaland has at long last become redundant and hand the key over to one of my none too few political opponents."

The Temple monk closed the age-flimsy book he had been reading, but held the place with his right forefinger.

He said mildly, "The first is an admitted possibility. But who would know, upon finding it, that the ultra-remote Number One . . ."

"Don't call me that, Rig."

". . . Excuse me, utilized a device as anachronistic as a lock and key to protect himself? In the second case, I am not a believer in the theory that displacing a dictator ends dictatorship. It merely opens the way to a different dictator, who may well be worse than the one just . . . eh . . . liquidated."

Number One brought his glass back to the fire and slumped into



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the chair across from his friend. He swallowed a larger amount than was his wont, in a gulp.

"So," he said, "you think you might as well support me."

The Temple monk shook his head and sighed, patting his rounded tummy. "Only insofar as I have always supported you, Jim."

Number One twisted his mouth. "Mark Fielder sent me a report last week which revealed that out in the boonies the common man thinks of you as my alter ego. Sort of a Svengali. When something goes more than ordinarily wrong in Alphaland, *that curd of a Temple monk* is behind it."

Pater Riggin said softly, "And what was our good Deputy of Surety's suggestion?"

"That we shoot you, of course, and satisfy the yokes. They evidently could use a bit of satisfying, these days."

Number One finished his Greek brandy and set the glass on a low table. Instead of immediately sinking back into his chair, he took up a stogie from a humidor. He selected an ancient style match, struck it under the table top, and drew smoke into his mouth and nasal passages.

Pater Riggin had never quite become used to the other's vice. Somehow, it didn't seem the thing that one would do, even before one's closest friend. He looked half away, not noting his companion's cynical expression.

Even Pater Riggin, Number One suspected, in his secret heart desired the Presidor of the Free Democratic Commonwealth to be a literal, rather than a propaganda, perfect man. He wondered, on occasion, what would happen if at this point in life he took a younger woman in marriage. Would the ultimate reaction lead to his overthrow, in this hypocritical society? He doubted if more than one person in ten among the citizenry realized that he had been married in his early years and that his wife had died on the barricades that accompanied his coming to power. It had been a long time ago. And now the people thought him a life-long abstainer from sex, as from every mundane pleasure. Inwardly, he snorted.

The Temple monk said: "What was decided at the session today, Jim?"

The other's eyes narrowed infinitesimally. "How did you know there was a session of the inmost staff, Rig? That's strictly Surety information."

The slightly older man laughed gently. "I have known you for, let me see, is it fifty years, or fifty-five, Jim? I would warrant that ten minutes ago you were with your closest advisers and that you didn't like what developed."

Number One exhaled smoke through his nostrils. He said, abruptly, "Graves gave his final report. The computers say the war would be over in less than three months.



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We would take about 330,000 casualties, of which some 18,000 would be deaths."

"I see. And how many would the defenders of Betastan lose?"

"I didn't ask."

"You should have asked," the Temple monk said softly.

"Not before such co-aides as Marshal Croft-Gordon and our Surety bloodhound, Mark Fielder. It would be interpreted as an unbelievable weakness in a Presidor."

Pater Riggin looked at him thoughtfully. "I can anticipate what most of them reported and recommended, Jim. Were any at all in opposition?"

"Ross, perhaps."

"Franklin's boy, eh? And what was our Deputy of Propaganda's position?"

"He thought we were going to have our work cut out selling an aggressive war not only to the neutrals but to our own people. He thinks it all comes too soon after the civil war Max precipitated."

The Temple monk shook his head, weariness there. "Would that he was right."

Number One looked at him, saying nothing.

The Temple monk opened the book at the page he had been perusing. "Jim, have you ever heard of a writer named Mark Twain?"

"I don't believe so."

"Early Earth. Many an unthinking person, seeing only his surface, thought him a humorist. Basically, he wasn't. He was an idealist and crusader who died a very bitter man. Listen to this." He read.

*"The loud little handful—as usual —will shout for the war. The pulpit will—warily and cautiously—object . . . at first; the great, big, dull bulk of the nation will rub its sleepy eyes and try to make out why there should be a war, and will say, earnestly and indignantly: 'It is unjust and dishonorable, and there is no necessity for it.' Then the handful will shout louder. A few fair men on the other side will argue and reason against the war with speech and pen, and at first will have a hearing and be applauded; but it will not last long; those others will outshout them, and presently the antiwar audience will thin out and lose popularity. Before long you will see this curious thing: the speakers stoned from the platform, and free speech strangled by hordes of furious men who in their secret hearts are still at one with those stoned speakers—as earlier—but do not dare to say so. And now the whole nation—pulpit and all—will take up the war cry, and shout itself hoarse, and mob any honest man who ventures to open his mouth; and presently such mouths will cease to open. Next, the statesmen will invent cheap lies, putting the blame upon the nation that is attacked, and every man will be glad of these conscience-soothing falsities, and will diligently study them, and refuse to examine any refutations of them;*



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*and thus he will, by and by, convince himself that the war is just, and will thank God for the better sleep he enjoys after this process of grotesque self-deception.*"

Pater Riggin looked up, closing the book again.

"It was true in Twain's time, and much more so today. Given well-disciplined press, given well-channeled TriDi shows and news broadcasts, given a people that have been raised since earliest childhood in the chauvinistic belief that their country is always right, and, even if it isn't, they should support it—and you can have your war, Jim. Of course, if it lasted too long, then there would be reaction. But so long as the man in the street wasn't too badly put out, you could have your war, Number One."

The other pretended to miss the term. He said, "Rig, you know Phil McGivern."

The Temple monk said wryly, "Our authority on socioeconomics."

"His computers tell him that without new foreign markets and sources of raw material we face an economic collapse in a few months."

His life-long companion looked at him, unblinkingly.

Number One said, an undertone of urgency in his voice as though pleading for understanding, "It would mean more civil disorders, Rig. More fighting in the streets. More of the bloodbath we had when Max and his group tried to take over."

The Temple monk looked away. He and his present companion had never discussed, more than in passing, the coup d'etat attempted by their mutual friend Maximilian Barker.

He said gently, "Possibly Max had the right idea and we didn't realize it at the time."

"What is that supposed to mean?" the Presidor rasped. "You can push our friendship too far, Pater Riggin. Max was a rabid Karlist, and you know it!"

Pater Riggin shook his head, unimpressed by the sudden heat. "No, I don't. All I know is that your Commissariats of Surety and Information branded him such, over and over again, until, possibly, even you believed them. It's a dangerous thing, Jim, to believe your own propaganda, but it comes to all men if they listen to it long enough."

Number One came suddenly to his feet. He threw the half smoked stogie down, missing the ash tray. The long slim cigar hit the table and rolled across it to drop unheeded on the floor beyond.

The ultimate head of Alphaland strode angrily to the bar, and poured a brandy. He threw the potent drink back over his palate, grimaced and turned to a bank of dials, levers and buttons, set next to a book case.

He snarled at his friend, "The ultimate computer. The foolproof adviser. The computer designed for the layman."

He snatched up a handmike and



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roared into it. "In the event that war is not provoked with Betastan within two months, what will the result be so far as the Presidor is concerned?"

The answer came from the speaker so quickly that it would seem that the angry man's voice had scarce died away.

*"The likelihood of armed revolt against the present occupant of the office is ninety-one point eight percent, give or take one point four percent."*

"Who would lead such a revolt?"

*"The likelihood is that the revolt would be led by one or a combination of two or more of three men, Deputies Matheison, Fielder, and Marshal Croft-Gordon."*

"Would such a revolt be successful?"

*"The likelihood of the revolt's success would be eighty-two percent, give or take three point three percent."*

"In the case of the revolt's success, what would be the likelihood of a war then being undertaken against Betastan?"

*"Ninety-six percent, give or take two point one percent."*

He slammed down the handmike into its cradle and began to turn to his companion. Suddenly he stopped and said, "No!" He picked it up again.

"Would the United Temple support the government of the current Presidor if he declared war upon Betastan?"

*"The likelihood is ninety-eight point six percent that the United Temple would support the Presidor, give or take one half of one percent."*

Number One turned back to his only intimate and now his Prussian starched shoulders had slipped into resignation.

"So you see, even the Holy Ultimate, through his representatives on this planet, supports the war. Any ideas, Rig?"

Tilly Trice looked the newcomer over and made a wryly humorous moue.

"You don't look like much of a soldier, Centurion," she said.

He said ungraciously, "Neither do you. Isn't that part of the idea?"

"How old are you, anyway?"

His youthful face was petulant. "That's none of your business."

Her fine eyebrows went up. "Tu, tu, tu. You're talking to a superior officer, Centurion."

"Yes, sir. I mean . . ."

The slightly built girl laughed. "I never felt right about that either. However, the correct term is madam."

"Yes, sir." The other flushed. "I mean, madam. Trouble is, you don't look like a madam." He jerked his head in alarm. "That is—"

She laughed again. "All right, let's cut out this jetsam. Wait'll I change my clothes, and we'll get going." She ran her eyes over him critically. "You look all right." She



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thought of something. "Are you carrying a shooter?"

"Of course."

"Well ditch it, right here and now. Are you drivel happy? You think you're going to get into a government building carrying as much metal as that?"

She indicated a desk. "Stick it in there." She began to turn to go into the next room, the living quarters behind her store.

He put the gun into a drawer, scowling. "There's no way of locking this. Anybody snooping around would see it."

Just before she passed through the door she looked back at him scornfully and said, "Centurion Combs, face reality. If Alphaland Surety ever became suspicious enough to start seriously snooping around this place, they'd find so much that the jig'd be up. One shooter, more or less, wouldn't make an iota."

She left and he spent the next ten minutes staring at the shelves of books. He had never seen this many outside a museum. He took one or two down from the shelves and handled them gingerly. It must, he decided, have been a tedious way of reading.

When Tilly returned, he looked at her for a moment, frowning, obviously in lack of recognition.

"Knock it," she laughed, in a just-short-of giggle. "It's me."

He stared at her, his eyes going up and down her masculine costume. Finally, for lack of something else, he demanded, "Where'd you get those buck teeth?"

She snorted, "Centurion, I don't know where you received your ECE training. Cosmetics can whip up a guise like this before you could get down a glass of guzzle."

"I don't drink," he said righteously. "Besides, I didn't study at the Espionage-Counter-Espionage Academy."

"Come on, let's get going," she said, handing him a piece of fruit. "Where did you study?" She headed for the door.

He followed her, looking at the thing in his hand. "What's this? I studied at Partisan Tech."

"A banana. We don't have them at home. Wrong climate. I took some courses at Partisan."

There was a sporty looking hoverscooter at the curb.

She said, "You get on back. Keep your eyes open. You're going to want to learn this town, inside out. If you ever have any spare time, walk or ride up and down the streets, memorizing them. It might mean your life, some day."

"Well, all right. Look, what do we want with a banana?"

"Hang on," she said, dropping the lift lever. "It's part of our protective covering. The one little added bit of business that puts us over."

He was sitting behind her. He rolled his eyes upward, as though surrendering to idiocy on the part of superior authority.



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They slammed down the boulevard at a speed that must have been in excess of city ordinances.

"Hey . . . uh . . . madam," he protested finally. "You want to get picked up by some Alpha fuzz-yoke?"

"No," she told him. "But this is part of the protective coloring, too. Looks authentic."

She zoomed finally into a parking zone, before a monstrous building in stone, and skittered to a halt.

Tilly vaulted from her seat exuberantly.

"Come on!" she said.

He followed her, more sedately. "This says for Senior Personnel only," he whispered.

"I know, I know. Let's go."

"Hey, you two kids!" a voice called impatiently. "You can't leave that scooter there."

"Aw, why not?" Tilly whined.

A uniformed Surety officer came up. He snapped, "Because I said so, damn it."

Tilly put her hands on her hips belligerently. "Listen, do you know who my father is?"

A weary expression came over his face. He was a heavy, bullyboy type, a quick-draw holster built into his leather jacket where a left pocket might have been. But obviously this was no occasion for weight being thrown around.

He said, "No, sonny, my heart is pumping curd, but I don't know who your daddy is. All I know, if Superintendent Nichols comes in here and finds that souped-up scooter in his parking place, he'll burn off."

"I'm just gonna be here for a minute," Tilly whined.

Her companion got into the cat. "Aw, come on, Killer," he said. "Don't argue with this cloddy. Park it somewhere else."

The Surety man eyed him unhappily, opened his mouth as though to growl something, but then shrugged it off.

"Snap it up, boys," he said. "You just can't leave it here."

"All right, all right," Tilly said. "Give me a hand, Bimbo." She and Combs took hold of the sports hover and pushed it down the line to a public parking zone.

They then headed for the entrance, where two additional Surety men, both with scrambler rifles, stood post. They had lazily been watching the hassle with the parking attendant.

Tilly said, "Peel your banana." She pulled her own piece of fruit from her pocket and began to eat it.

Combs said, "Why all that, back there?"

"Protective coloring," she said.

They climbed the half dozen stone steps and began entering the building.

"Halt!" one of the guards barked.

"Aw, curd," Tilly sneered, continuing on her way.

"I said halt, damn it! Where do you kids think you're going?"

Tilly's face fell into the expres-



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sion, known since man issued forth from the caves of Cro-Magnon, of the teen-ager being put upon.

"Aw," she whined, "I gotta see my old man. Holy Jumping Zen, I don't have all morning. I gotta lot of things to do. I'm supposed to see my old man."

The other guard said, "You can't go in here. Buster. This is government—"

The first guard interrupted him. "Who's your father, and what are you supposed to see him about?"

"He forgot his pills."

The Surety man rubbed his mouth, as though long suffering.

Combs said, eating his banana, a sneer of superiority on his face, "Aw, the hell with it, Killer. Let's go see if we can scare up a couple mopsies."

Tilly said, argumentative, "My old lady said I gotta get these pills to my old man. He'll drop dead, yet, or something. He's been taking these pills till they run out his ears. I never seen them do him any good."

The second guard said, "What's your father's name, Sonny?"

Combs chuckled. "Sonny, yet, he calls you. Killer."

Tilly said, "My old man's Assistant Supervisor Hillary. He swings a lot of weight around this joint."

"I never heard of him," the first guard said hesitantly.

"I have. I'll phone up," the other one said.

"Aw, curd," Tilly said. "You'll take halfa the morning. I know where he is. I know everybody in the department. He wanders around a lot between the offices. I can find him."

"Let him go, let him go," the one guard said to the other. "Zen, what difference does it make?"

Tilly waited no longer. She and her companion headed for the door again, still eating their bananas. The second guard muttered something, but they were through the entrance.

Combs said, "*Whee.* Suppose they'd phoned up to this Supervisor Hillary? Is there any such cloddy?"

She shot him an impish grin. "Sure. You think I'm inefficient? I happen to know that Hillary left the building by another entrance and is at this moment being entertained by his mistress, half a dozen kilometers from here. If they phoned to his office, his secretary, who covers for him, would have said he was wandering around the building, checking on his underlings."

Combs shook his head.

They moped along down the building's corridors, drawing only the slightest attention from bustling bureaucrats, secretaries, building maintenance workers, and the others who teemed the halls.

They got to the part of the building which was their destination, and had to saunter up and down a couple of times until the way was clear.

Tilly opened a door and they hurried inside. She barred it behind them.



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"We've got to work moderately fast," she said. "Prove your worth, Centurion."

"Where in Zen's the line?"

"Here, help me push this box away. There you are. I assume you can get that open?"

"I can get anything open." The youthful looking Betastan operative bent down to look at the metal aperture set into the wall. "How'd you ever locate this?"

Tilly said, "Tu, tu, tu, my dear boy. In a country like this, where the gold Alpha is almighty, spreading some around a bit will buy you just anything at all."

He was on his knees working at the tiny door. It swung open to reveal wires beyond.

Tilly said, mildly impressed: "How'd you open that?"

"Hairpin," he said absently.

Combs opened his jerkin and brought forth a device from an inner garment that resembled a many-compartmented money belt. He was humming sourly to himself as he worked.

Tilly said, "Don't think it all goes this easily. There isn't much of a Surety guard about the Commissariat of Information."

"Hm-m-m," he murmured, not really hearing her.

It was a full two hours later, they emerged from the building maintenance room. Tilly came out first, shot her eyes up and down the corridor.

"Hurry," she said.

Combs began to emerge, still stuffing some of his equipment back into his compartmented belt.

At that split moment, a uniformed Surety guard, trailing a scrambler gun at ease, rounded the nearest corner of the hall. It was one of the two who had been posted at the entry.

He came to a halt and blinked at them.

"Hey," he snapped, "what in Zen are you two still doing in the building?"

Tilly walked toward him. "Aw," she said. "I couldn't find my old man at first. He was out gettin' a bite, or somethin'."

Combs slouched along behind her. "Yeah," he sneered. "We spendin' the whole day around this crumby . . ."

The guard snapped, "What were you doing in that . . ."

Tilly dove for his legs, throwing what little heft she had into the attempt to bring him to the floor.

Behind her, Combs leaped, his hands held chopper fashion.

The guard tumbled, too astonished to yell.

One chopper slashed out and the guard's larynx collapsed. Combs banged him again, behind the ear this time.

Breathing deep, the two Betastan agents came to their feet.

Tilly was pale. "We've got to work fast," she said. "If we're caught, they've got the perfect excuse to start the war. Public opinion



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throughout the neutrals . . ." She let the sentence fade. "Come on."

She had grabbed one foot of the dead man. He took the other.

"Where're we going?" he demanded, breathing deep. "Somebody'll come along this hall . . ."

"Here," she said. They had reached a stairway.

They pushed the Surety man down, letting him roll over and over again.

"Quick," she said, "the gun."

Combs scurried back and got the scrambler. They tossed it after their victim.

"Just a minute, I thought of something," Tilly snapped. She scurried back to the room they had just left, while Combs agonized, his eyes darting up and down the deserted hallway. It was lunch time, but you never knew.

She came back, one of the banana skins in her hands.

She put it on the top step, put her foot over it and rubbed it flat, as though it had been stepped upon accidentally.

"Come on Centurion, let's get out of here," she said.

He looked at her, even as they scurried from the scene. "That was no joke when I gave you the nickname, Killer," he said.

## III

The guard at the door clicked his heels and said, "Co-aide Deputy Ross Westley."

Number One looked up from his desk.

Ross entered and came to attention, though dressed in mufti.

"Your Leadership," he said.

The guard closed the door behind him.

Number One nodded, "Sit down, Ross."

"Yes, Your Leadership." Ross Westley crossed the room, nearer to the quarter acre of desk behind which his ultimate superior sat, and found himself a chair. He had heard once that Number One deliberately had the chairs in his sanctum sanctorum constructed to be uncomfortable; possibly working on the theory that he didn't want people about him to be at ease, physically or mentally. Ross didn't know, but uncomfortable the chairs were.

Number One looked at him bleakly. "The decision has been made. Your commissariat has exactly one month in which to prepare the people for our crusade against Betastan."

"A month!" Ross blurted.

"We can afford no more. I wish your father were still alive, Ross, but since he isn't I trust your own ability to handle this."

"Your Leadership," Ross said tightly, "I doubt if my father, even, could have drummed up a war fever in this country in as short a period as one month. What possible approach . . ."

The Presidor eyed him grimly. "That is the problem of your offices,



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Co-aide. You will receive full cooperation, from all departments."

Ross Westley's mouth worked, but he could think of nothing to say.

"Snap out of it," the other rumbled, in sudden irritation. "There are thousands of approaches. Consult your staff. Bauserman would have a dozen suggestions by this time."

A dozen? Ross thought bitterly. A double-score was more like it. Each more repulsive than the last.

Number One said, "One suggestion of my own: The United Temple is fully behind this crusade. In fact," he smiled his humorless smile, "His Holiness himself suggested that we call it just that, a Crusade. You realize that in the past century, in particular, the Betastani have drifted away from the more orthodox dogma of the United Temple. I would play upon the fact, concentrate upon it, that our most basic desire in the war to defend ourselves against the Betastan aggressors, is to bring back the true faith to that benighted land."

Ross winced. "Isn't that going to be a bit hard to swallow? Not on the part of the Betastani, of course. They don't count. But the neutrals?"

"That is your task, Ross. Your commissariat has carte blanche. The computers have put your budget at approximately sixty-three million Alphas."

The Presidor took a deep breath. "I suppose that is all for the moment. We shall have a session of the inmost co-aides this afternoon and shall devote part of it to your propaganda campaign. By then, I assume you will have at least a skeletal program to present to us."

Ross Westley came to his feet. "Yes, Your Leadership. With your permission."

"Until this afternoon," Number One said.

Ross Westley slumped at the head of the table while his assistant, Job Bauserman, briefed department heads of the Commissariat of Information on the orders which had come directly from Number One.

He followed Assistant Deputy Bauserman sourly. The other was a full ten years the senior of Ross Westley and had come up in the governmental branch from the near bottom. He was lean, fanatic, with a gleaming eye and an overpowering ambition—and hated his superior's guts.

It had been, of course, a matter of nepotism. Franklin Westley, the father of Ross, had been one of the Old Hands—those who had stood shoulder to shoulder with Number One on the barricades of the first rebellion; one of those who had remained true when the Max Barker revolt burst into flames and even the Old Hands had been split.

The Old Hands took care of their own. When Franklin Westley died, Ross was given his position as Deputy of the Commissariat of Information, known in party circles as



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the Department of Propaganda. At the time he received the appointment, shortly after taking his doctor's degree in ancient history, his knowledge of the office was exactly nil. In time, he learned, but it was Job Bauserman and the other longtime pros upon whom he had to lean. He knew it and they knew it. And most of them hated him. Surely, Job did.

The other turned to Ross finally and said, forced respect in his voice, "Have you anything to add to my summary, Co-aide Deputy?"

Ross shook his head and sat more erect. His assistant took his chair.

Ross said, "One month. I needn't tell you that we're going to need every second of it. This afternoon, there's a meeting of the Central Comitia. I've got to have at least a skeleton program to present. Ideas, please."

Pater Ian said, "The United Temple has in its infinite wisdom long foreseen this development. The erring brethren of Betastan must be brought back into the fold. Of recent months we have been studying the workings of an historic organization which, under somewhat similar circumstances, proved highly effective. It was called the Holy Office. However, this plan of operation will not be practical until the collapse of the Betastani resistance. Meanwhile, the United Temple plans to open a full drive, not only in Alphaland and Betastan, but amongst the neutrals as well, revealing the extent to which the Betastani government has allowed atheism and agnosticism to undermine the faith of the people. If you will find time, Co-aide Deputy, I shall go over in detail our broadcasts, publications and so forth, detailing the campaign."

Ross nodded, "Tomorrow morning, please." He turned to another department head. "Co-aide Taylor?"

Martha Taylor was the dry, neuter-sex type prevalent in governmental higher ranks.

She said, "I think I have something good. The Amish."

Ross scowled at her. "The Amish?"

"To brief you, Co-aide Deputy, I found this in my department's data banks, somewhat to my surprise. It would seem that when the planet was first being colonized from Mother Earth, one ship's complement was composed of a somewhat discriminated against religious group which settled in the back areas of Betastan near the Tatra Mountains. Later, elements of this group diffused over the planet, though few came to Alphaland."

"Never heard of them," someone growled. "What's this got to do with drumming up war fever against the damned Betastan funkers?"

She rewarded the speaker with a scornful eye, but went on. "The reason they had been discriminated against soon became obvious. They stuck together against all outside



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pressures. They went into such fields as finance and merchandising, soon gaining all but monopolies not only in Betastan but in several other nations. They also gained high governmental office, though usually inconspicuous ones. Evidently, from my data, they are the power behind the Betastan administration."

Ross was frowning. "The Amish?"

"That is the common name given their pseudo-religious group, Co-aide Deputy," she said stiffly.

Ross said, shaking his head, "When I was a boy, I went once to the Tatra Mountains on a vacation. Skiing. I didn't get to know any personally, but I failed to gain your picture of these people. They were rather drably dressed and not overly gregarious perhaps . . ."

"That's what I am saying, Co-aide. Evidently, they're almost like misers, hoarding their finances, associating only with each other. And, to top it all, they have their own false religion, not abiding by the benevolent guidance of the United Temple."

"Hm-m-m," Pater Ian injected. "It seems to me that I have vaguely heard of this group. However, I didn't think their powers extended as far as you report."

"The data banks hardly lie, Pater," she said primly.

"No, of course not," the Temple monk said.

Assistant Deputy Bauserman came into it, his eyes gleaming. "It's a natural. There's absolutely nothing like religion to get people steamed up to the boiling point. Remember the Hindus and Muslims, back on Earth? Supposedly, a Hindu wouldn't swat a mosquito since it would be breaking the taboo against taking life, but given religious troubles with the Muslims and they slaughtered and were slaughtered, by the millions. Or take the centuries-long wars and massacres between the Christian sects; all in the name of the gentle Jesus, they butchered each other wholesale. Or take the Christian prosecution of the Jews. No, religion is the perfect background for butchery."

"My son," Pater Ian said in mild protest.

Bauserman looked at him. "Oh, I didn't mean the Holy United Temple, Pater Ian. Obviously, at long last man has evolved to the perfect intermediary between himself and God. However, from what Co-aide Taylor says, this Amish scum doesn't even observe the leadership of the United Temple in matters religious. They are fair game in this holy crusade we are about to embark upon."

The Temple monk nodded thoughtfully. "It would seem so."

Ross exhaled air. He had no alternative. He said, "All right, Co-aide Taylor. I will expect your department to launch a full denouncement of these Amish. For three weeks you will exploit every opportunity to expose them. At the end of the



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period, stress the sacred need for all believers in the true religion to seek these Amish out and destroy them."

Bauserman broke in. "You might also continually hint that they are actually part of the Karlist conspiracy."

Ross looked at him. "What Karlist conspiracy, Job?" He seldom used the other's first name, knowing Bauserman's objection to anything less than the strictest form, but it had come out in his surprise.

His Assistant Deputy turned to him. "I was about to brief you on this phase, Co-aide Deputy Westley. Obviously, we are going to have to devote a major part of our propaganda campaign to the Karlist threat. It will be particularly effective amongst the neutrals. Just the mention of the word is enough to set governments trembling in half the nations on the planet. We'll push the line that the Betastan government is infiltrated with Amish and Karlists. That there's a scheme underfoot to allow the Karlists to take over the government and then subvert the rest of the world."

Somebody muttered, "I thought there weren't enough Karlists left in the world to hold a committee meeting."

Bauserman looked at the speaker coldly, "Co-aide, the ends justify the means. The holy Crusade to bring the whole planet under the aegis of our inspired Presidor is an effort so worthy that nothing done to achieve its success can be thought of as less than the truth in the ultimate sense of the word."

"I could not have stated it better myself," Pater Ian said unctuously.

"All right," Ross sighed. "You can go over this with me later in detail, Co-aide Bauserman. And now, what else do we have as possible propaganda against the Betastani?"

A uniformed colonel said, "Off and on, over the years, we've had touches of border trouble. It could be allowed to come to a boil."

"How?"

The colonel looked at his superior as though the other was stupid, then caught himself and his face went militarily blank.

"Several ways, Co-aide Deputy. We could precipitate a clash with their border guards, and then claim they had started it. We could escalate the clash, over and over again —always assuming the funkers would resist.

"Or, we could infiltrate a few score of our ECE men, armed with mortars, at one of the least populated border points, and let them shell one of our own garrisons or towns. The mortar shells, of course, would be Betastan calibers and we would make sure some of them failed to explode. We could then bring a planet-wide committee to see the effects of the shelling, the dead and wounded civilians, old men, women, children—that sort of thing. A hospital would be good. A shelled hospital is particularly ef-



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fective in the way of horrifying noncombatants. I've never quite figured out why."

The Temple monk said gently, "My sons, couldn't some more kindly tactics be devised? Not that I wish to inject a note that interferes with secular affairs. The United Temple is involved only with man's most spiritual concerns."

They ignored him.

Bauserman, his eyes a-gleam, said, "A natural, Colonel!"

Ross Westley left his pneumatic car at the park entry and, ignoring his usual precautions, made his way in the direction of the book shop and binding service presided over by Tilly Trice. He didn't notice the two unobtrusive men in civilian clothing who drifted after him.

After he had disappeared into her tiny store, one of the two tails looked at the other, eyebrows raised.

The second one said, "Better report."

"What've we got to report? The chief said to follow him. All he's done is go into an antique book store."

"Listen, if you was in the frame of mind he oughta be in these days, would you be going into a book store? Some bootleg auto-bar, yeah. Even a mopsy-house, yeah. But an antique book store?"

The other grunted.

The first said contemptuously. "The flat. No precautions at all. Doesn't even look over his shoulder."

The other said sourly, "Which indicates he wasn't thinking in terms of having anything to hide."

"Well, let's go report. There's something funny about that old book shop. Come to think of it, that's one of the places Admiral Korshak used to go to before he committed suicide."

"He did! Holy Ultimate, let's go get to a communicator."

The other looked around nervously. "Watch your lip, Larry. Just because you're Surety doesn't mean some Temple monk cloddy might not nail you for blasphemy."

They started back the way they had come.

The one who had been contemptuous of Ross Westley's lack of caution, could have taken a lesson from his own teachings. Neither of the two Surety agents had noticed the three teen-agers who had been strolling across the street from them but in the same direction, though the three loudly dressed youngsters had been noisy enough, conspicuous enough.

Nor did they see the three close in behind them.

Nor did they see the one who raised to his lips what seemed to be a bean shooter.

Tilly Trice made a moue at him. "Nope, lover-mine, I told you. I can't marry you until this crisis is over. Even then, I'm still thinking



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about it. Your passion, fella, is obvious. But any girl should know that first passion can pass. How'll you be in the long pull, Rossie my friend?"

"Look," he blurted, "you know damn well you're the only girl that ever made any difference to me."

"Tu, tu, tu. And now who's using four-letter words?"

He looked at her blankly.

"Damn," she said.

He tried to follow along with her lighter mood, knowing full well that in her presence he was apt to become miserably dull, in his absorption in the need for her.

"I thought it was a three-letter word," he said. He crossed his heart and pointed upward. "May the Holy Ultimate strike me dead if I ever use a four-letter word to you again."

Her eyebrows rose, even as she put the book she had been recovering to the side. "Your stock just went up," she said. "I thought you were a fully indoctrinated follower of the United Temple."

He growled, "That's for the yokes."

"Oh? Is that the common belief among you deputies? I understood that Number One in particular was never without a Temple monk by his side."

Ross scoffed contempt. "It's my department that spreads that bit of gobbledygook. Actually, Pater Riggin is an old-time friend of the Presidor's. They bat the breeze around about top decisions but, so far as religion is concerned, I doubt if either of them has attended conclave for the past ten years."

She said suddenly, "What develops, Rossie?"

He looked at her, his face sullen now. "It's set. One month to go. Listen, Till, get out from under. Marry me. Call it all quits. I can cover for you indefinitely. Betastan is sunk. According to Marshal Croft-Gordon we have the military and industrial potential to take Betastan three times over. Three times, Till! What you've got to do is use what influence you have to get your country to capitulate. Otherwise, when the initial missile and air attack takes place, Betastan has had it to the tune of millions of casualties."

Her eyes were first narrow, but her expression faded into the thoughtful.

"If I'm reading you correctly, Rossie, there's to be a sneak attack."

"I shouldn't have revealed that," he said, still sullen. "But you might have guessed."

"Where do you draw the line?" she laughed mockingly at him. "You've been giving me information for months."

"Trying to enable you to get out from under. But now it's getting to the point where there's no alternative. Each man's got to take his stand, Till. And Betastan hasn't a chance. I was a fool to help you at all."

She said, after pursing her lips, "I'll tell you, Rossie. Maybe you've



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got a point. But it'd be a mistake, the sneak attack. Bad propaganda. You should know that, it's your field. You ought to give some slight warning. Any warning at all would look better to the neutrals. At least it gives us the chance to back down before your, uh, might."

"You're right!" Ross said. "I'll have to bring that up. Then you think there's a chance your government will capitulate? But look, why don't you drop it all and marry me?"

She looked down at her meager figure as though in surprise. "What is there about little Tilly Trice that moves the overgrown cloddy just so?"

"It's no joke, Till!"

She let her bright face go serious. "I know, Rossie, but that's the way the water flows. As I told you, when all this trouble is over, well, then possibly there'll be me."

## IV

It was the last session of the Central Comitia of the Free Democratic Commonwealth of Alphaland previous to C-Day, the day during which the Crusade, the liberation of Betastan from its depraved Karlist-Amish government, would commence.

Marshal of the Armies Ropert Croft-Gordon, using his swagger stick to point out on small scale military charts the points of attack, had been holding forth. His talk was punctuated with the figures his computers had come up with, plus or minus this amount, plus or minus that percentage. The marshal, it was obvious, was in fine fettle. A man does not study a science, if the military be science, for a lifetime without yearning to put his pet theories into practice.

He came to an end, at long last, hit his swagger stick against his leggings with a quick double rap, and said, "Questions, Co-aides?"

Number One said, very evenly, "You will address me, Co-aide Marshal. *I* shall decide whether or not at this point we shall have a session of questions."

Croft-Gordon flushed darkly. "Yes, Your Leadership. That is what I meant. Does Your Leadership have any questions to ask?"

Number One looked at him thoughtfully and for a long moment. Once the dogs of war are let loose, he well knew, none can say what will transpire before they are in leash again.

There came to the mind of the Presidor such examples in Earth history as Napoleon the Little who dashed into conflict with William of Hohenzollern and in a matter of weeks saw his own empire dissolved and that of the German states emerge. Would Czar Nicholas of All the Russias have mobilized quite so quickly had he known the war would end in the assassination of he and his family and the take-over of the Bolsheviks? Would Franz Josef have been quite so keen for the fray had he foreseen the fragmentation



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of his proud Empire once spread out across half central Europe?

And the military mind is ever ambitious. Number One was not so naïve as not to know that Marshal Croft-Gordon dreamed of ultimate power, and that various of the deputies supported him in their secret hearts. Number One had no need of a computer to tell him that.

He took in the unhappy face of Ross Westley.

"Co-aide, you wish to speak? I hope your contribution is somewhat more efficacious than the farce your commissariat precipitated in regard to the so-called Amish threat."

Ross shook his head. "Your Leadership, perhaps we can all take a lesson from that. Not to underestimate the enemy."

"Jetsam." Mark Fielder of Surety snorted

Ross looked at him. "It was no easy romp on the part of the Betastani to infiltrate the Commissariat of Information and feed false data into our banks. We proceeded on the basis of that data. How were we to know that in actuality the Amish are small in number in Betastan, invariably well thought of by their neighbors, not interested in accumulating large amounts of property and having no interest whatsoever in government? The worst result of our misinformation, of course, was neither in Alphaland or Betastan, but in the two or three neutral nations where there are large Amish elements."

He directed his gaze, somewhat apologetically, at the Presidor, and held up a report tape.

"Your Leadership, immediately before entering this meeting I received final news on the overthrow of the pro-Alphaland government of Moravia. The revolt is completely sucecssful and the new regime leans toward Betastan. We have, of course,branded it Karlist."

Number One said, "Ordinarily, we would have sent in airborne marines to preserve liberty, but at this point we can afford to divert no considerable number of effectives. We shall have to deal with Moravia following the Crusade."

Deputy Matheison jiggled his stylo, "Are they really Karlists?"

Ross shook his head. "No, Co-aide. But the new government is so liberal that it just misses being so labeled. The more notorious anti-Alphaland elements all support it."

Number One said, "I assume the point you wished to raise didn't deal with this now past matter of the anti-Amish propaganda."

Ross turned back to his ultimate superior. "No, Your Leadership. I rose to protest the sneak attack the marshal proposes. The plan to strike all their most important cities, industrial complexes and military bases without warning."

"What!" Croft-Gordon barked.

Number One held up a hand. "That will be all Co-aide Marshal."

He turned back to Ross. "Develop your point, Co-aide Westley."



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Ross said doggedly, "We have already had a bad start on our propaganda meant to influence our own people, the neutrals and dissatisfied elements among the Betastani. An attack without a previous formal declaration of war, will unite the Betastani, shock our own people who are poorly prepared for this aggressive war at any rate, and will certainly turn the neutrals against us."

The Central Comitia broke into mutterings.

Number One said, "Marshal?"

The marshal said heatedly, "The plans have all been explained. The computers have worked on the basis of such a surprise . . . I resent the Co-aide Deputy's use of the term sneak . . . attack. Without it, we would still triumph easily, of course, but the cost in casualties and finances would inevitably be higher."

Ross said, "It will be higher still if the neutrals enter the war on the side of Betastan."

"You heard the report Graves gave on that. They won't have the time to mobilize, even if they did want to enter. The war will be over in weeks."

Number One was irritated by the overriding inflection of his military chief. He said, thoughtfully, "We could send them an ultimatum concerning their unprovoked attacks upon our border stations. It could be worded in such wise that they wouldn't actually expect us to attack. However, we could hold a secret session of the People Parliament and declare war and have our missiles and bombers on the way within minutes. Public opinion would be satisfied, but at the same time the attack would have practically the same effect as if no warning had been given."

He looked about at his Comitia members. "If there are no other opinions, I so rule."

The marshal opened his mouth angrily, shut it again and shook his head.

Number One said, "Are there further questions at this point?"

Deputy Mark Fielder of the Commissariat of Surety came easily to his feet.

"This bears on the present issue only obliquely, Your Leadership. However, since Co-aide Westley was the last speaker . . ." He took up a report from before him.

"There has been so obvious an increase in enemy ECE, Espionage-Counter-Espionage, so many leaks of our innermost secrets to Betastan, that I have taken the freedom to check upon all elements who might possibly have been involved —even, Your Leadership, to the point of, ah, keeping tabs upon our membership."

There was the sound of inhaled air throughout the council room.

Number One's eyes were cold. "We have been through this before, Co-aide Fielder. You seem to have ignored my earlier directives."



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Fielder said smoothly, "If so, inadvertently, Your Leadership. Please hear me out. Purely as routine check I assigned two apiece of my most discreet men to observe the activities of even we members of the Central Comitia."

"Including yourself, I assume," the Presidor said. "Go on, Co-aide. I suppose you found Co-aide Wilkonson, or possibly Academician McGivern, secretly supplying information to the Betastan espionage."

Fielder was not upset. He shook his head. "No, Your Leadership, but something equally strange. The two Surety agents who were assigned to Co-aide Westley disappeared while on duty and were eventually found trampled beyond easy recognition in the pachyderm exhibit at the Interplanetary Zoo."

"What's a pachyderm?" someone said.

The Surety head looked at the speaker. "A large Earth-side animal, now extinct except for specimens in zoos." He brought his eyes back to Number One. "But that is not all. In spite of the condition of the bodies, an autopsy was performed. Both contained elements of the drug popularly known as Come-Along, an ultra-effective hypnotic."

Number One took in Ross Westley from the corner of his eyes. The young propaganda chief was sitting in mute astonishment, his mouth half open. In the decision of his ultimate superior, who considered himself a judge of men, the younger deputy was as taken aback as anyone present.

Number One said, his voice harsh, "Your recommendation, Co-aide Deputy Fielder?"

"That Co-aide Westley be put under Scop and questioned."

Number One lapsed into thought and the room, filled with murmuring, went hush. For long minutes they sat there, Deputy Fielder still on his feet, but hesitant even to sink into his chair.

Ross Westley felt the cold go through him. Given Scop he would betray not only himself, but Tilly as well. There was no question of that. No man resisted the insidiousness of the truth serum. He must think of some out!

But there was no thinking, there was no out!

Number One, though his face was expressionless, was in a fury. Mark Fielder and Marshal Croft-Gordon were becoming increasingly bold in their formerly subtle opposition to his supreme command. Nothing overt, thus far, but when the pressures of the war were upon Alphaland, to what extent would they continue to undermine his authority? They must be sat upon, and that quickly. He considered, momentarily, relieving them both of their positions. But no, a purge at this time would be disastrous. The effect upon the people, immediately before an unpopular war, could only be a blow to morale. It had been a long time since the Central Comitia had



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suffered a purge—many thought them a thing of the past.

At long last, the Presidor spoke again, his voice deceptively mild.

"Co-aide Fielder, only a short time ago it was brought to our attention that you had seen fit to bug the offices and living quarters of even these, your most intimate co-aides. At that time I pointed out that if my regime must rest upon the shoulders of co-aides who must needs be kept under surveillance by the Commissariat of Surety, then the government of the Free Democratic Commonwealth was built upon foundations of sand. Co-aide Westley, young and possibly somewhat inexperienced as he may be, is the son of Franklin Westley, one of the Old Hands. Perhaps the term is meaningless to you, but it is not to such co-aides present as McGivern and Wilkonson, both of whom stood shoulder to shoulder with Franklin Westley in the decisive days. The son of Franklin Westley will not be given Scop in my behalf, nor will any of the Central Comitia."

There was a murmuring of applause through the chamber.

Temple Bishop Stockwater said soothingly, "Undoubtedly, whilst about their duties, the two Surety operatives of whom Co-aide Fielder tells us, ran into criminals, or enemy agents, and in dealing with them, met their untimely ends."

"Undoubtedly," Fielder murmured. He bowed his head in submission to the Presidor's decision.

Ross Westley burst into the tiny shop devoted to first editions, old prints, book binding and the literature of yesteryear.

He called, "Tilly, Till!" heading for the back rooms.

He had crossed the shop and pushed through into her private quarters before she fully realized his presence.

Tilly Trice was in the process of pulling a masculine shirt over the top of her head and the upper part of her diminutive, elfin figure.

He came to a quick halt and blinked at the woman he loved.

She turned her back and finished tucking the garment into her trousers.

"Why, Co-aide Westley," she said, mockery behind the scolding, "aren't you a bit impetuous?" She took up a jerkin and began shrugging into it.

Ross began to stutter an apology but then cut himself short. Against the table leaned a long bow, and on it rested a quiver of arrows.

He said, "What in the world are you doing in that getup, and what's wrong with your teeth? You look like a bucktoothed juvenile delinquent."

She pursed her lips, and there was a mischievous quality in the look she shot him.

"Life-long ambition," she said. "Archery. Suppose I make it all very simple, Rossie. Let's say the only archery club worthwhile in this town is for boys only. No curves al-



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lowed. So, what could be simpler? I pretend I'm a teen-age boy. The teeth? Oh, it's an added disguise. Otherwise, somebody might recognize me."

In a way, he was hearing the truth—stretched a bit—but he brushed it aside, impatiently. "You've got to get out of here, Till. Fielder had me followed the other day when I came to see you. Something happened to the two Surety men. I've got no way of knowing whether they reported back or not, or if he knows I've been coming here. Till, you've got to go back to Betastan."

She tinkled a laugh at him. "For a member of the Central Comitia, you're certainly weak on developments, Rossie. The border's been closed for a week."

"But surely you must have some secret way of getting your agents in and out. Don't tell me there are no Betastan agents in this country besides yourself. From what Fielder and Croft-Gordon report, Alphaland must be swarming with them."

"Yes, but I'm a cloddy when it comes to swimming," she said. "Even with flippers and snorkle."

"Swimming?"

"My sweet Rossie, in this day of radar and warning systems of a double-dozen types, do you think a Betastan agent could sneak across your borders, laden down with cloak and dagger espionage devices? Do you think he could cross the borders in a hopper, or parachute down, even though he started as high up as an artificial satellite? Perish the thought, lover-mine. That military machine Number One and Marshal Croft-Gordon have bled Alphaland white a-building, has every last gizmo known to the shoot-'em-up boys throughout United Planets. I don't think we could get a carrier pigeon, with a metal capsule on his leg, across the marshal's warning system."

He shook his head, scowling. "I suppose you're right, but how *do* your agents get in, then? I know perfectly well they're increasing in number."

She laughed at him, and took up her quiver to sling it over her shoulder. "They swim in from specially designed, wooden, foot-powered submarines, laddy-buck. Nude. And if the good co-aide marshal can figure out some way of telling the difference between a man and one of the numerous sea-going mammals of this planet, he's welcome to intercept them."

Of a sudden she dropped her bantering tone and stood before him. Her small hands went up to rest on his shoulders.

"Thanks for the warning, Rossie. However, I have reason to believe that Mark Fielder's Surety people still don't know of this place. I'll stick it out for a while. I've got work to do."

"Till, look. Why don't you marry me? You've spent too many years at this sort of thing, instead of look-



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ing into a woman's real place in life. What you need is love, Till. A home, children, a . . . a husband to look after. You've kept your nose to this espionage grindstone too long. You've had no experience in . . . well, in romance, in love. It's time you learned . . ."

She put a finger to his lips.

"When all this is over, Rossie, perhaps things will be different." Her face went Chaplinesque. "I'm glad to know you're so up on such matters. Because you're quite right, I've never had much time for such things as romance, Rossie. Someday I'll be glad to have you give me the benefit of your long, hard experience."

## V

Tilly Trice, bow slung over her shoulder, marched smartly up the thirty and more stone steps, toward the impressive edifice ahead. Behind her, two by two, in moderately good order, came a full score of similarly garbed, similarly armed seeming youngsters. Surely, the oldest appeared no more than eighteen, some, such as Tilly herself, a mere fifteen.

Each carried a quiver of arrows in such manner that the feathered ends projected over the left shoulder for a quick draw. The bow was slung, almost as though it were a rifle, over the right shoulder. On each head was worn a natty cap, somewhat reminiscent of Robin Hood.

Tilly marched briskly at the fore, a brassard of the Alphaland national colors around her right upper arm, a proud tilt to her head.

The four guards who stood at the top went bug-eyed at the approaching troop. Which troop didn't hesitate for a moment, keeping correct cadence all the way.

At the top, Tilly saluted the Lance Corporal smartly, "Honorary Ensign Lee, reporting for the audience with Deputy Matheison."

He goggled her blankly.

"Who?" he said. "Now, wait a minute. Who in Zen are you kids? What're you doing here?"

His fellow guards stood in their assigned positions, matching him gape for gape.

Tilly saluted again. "Yes, sir," she said snappily. "Bridgetown's Own, First Troop of the Alpha Scouts, reporting for the audience with Deputy Matheison of the Commissariat of Finance."

The corporal shook his head. "Listen, boy, I never even heard of Bridgetown, let alone the Alpha Scouts. What're you selling?"

Tilly looked at him as though reproachfully.

"We're supposed to have an interview and get some sort of engraved plaque for our headquarters."

The corporal looked over his shoulder. "You fellas heard anything about this?"

Two of them shook their heads, in utter denial. The other was the type who had to insert himself.



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He said, "Well, Corporal, it seems to me I saw something on the Tri-Di News. Something about the deputy going to give some kids an award, like. Yeah. It seems to me I saw something like that. I could be wrong."

The corporal looked at Tilly in doubt.

"What's those things you got over your backs?"

"We're Alpha Scouts," she said, as though that explained everything.

"Alpha Scouts?" he said dimly.

Tilly said:

*"Come wend the wild wi' me,*
*Venture shall ever be."*

The corporal blinked. He bit his under lip.

"We ain't never had no delegates of Alpha Scouts before," he admitted.

Tilly said, "I'll come inside and show you my things, and you can phone the deputy's office and they'll tell you all about it, I guess." Her mouth trembled infinitesimally. "They couldn't have forgot about the award," she said miserably. "Not after we came all the way from Bridgetown."

"O.K., kid," the guard said hurriedly. "Come on in."

He had meant only Tilly, but the others filed along behind.

One of the three remaining guards shook his head. "Sooner or later," he said, "you see everything. Hey, you know what those things they carried over their backs were? Bows and arrows."

"What's a bows'n'arrows?" one of the others said, disinterestedly.

"Don't you ever watch the historic shows on Tri-Di?"

"Naw. I like those burlesque revivals with all the mopsies taking their clothes off all the time."

"Bows and arrows are like the cowboys used to shoot at the Indians. Fella, those were the times. Burning down the wagon trains and rustling the buffalo."

"Wrestling the buffalo?"

An Alpha Scout stuck his head outside the entry and called, "The corporal says for one of you to come in."

One of the guards shrugged and went through the tall opaque door. On the other side, Centurion Combs slapped him behind the ear efficiently with a sap.

Tilly Trice went outside again and said shrilly, "Hey, something's wrong in here. The corporal's sick. He's got some kind of attack."

The remaining two guards made a beeline for the door, the pseudo-knowledgeable one saying, "I always thought he looked like he had a bad ticker, or something."

They pushed on through, their guns comfortably holstered, their minds free of suspicion and ran into the hands of two so-called Alpha Scouts apiece. They were grabbed efficiently, and Combs' sap thudded once again.

But then with a roar and burst of brawn, the second bashed his two slightly-built assailants together,



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threw them aside, and was down the corridor, running hard, at the same time tearing at his handgun, opening his mouth to shout a warning.

Tilly snapped, "Bernal!"

The arrow caught the fleeing guard in the upper spine and he was dead before his body hit the marble flooring.

Tilly snapped, "All right, Combs, Bernal, Alshuler, Zimmerman. You and your men, double time. You know your posts. Take them! Gonzales, stick close to me. Let's go!"

On the run, they sped down corridors that seemed no strangers to them. On the several occasions that they came against Surety guards, or civilian dressed employees of the commissariat, the reaction of the others was such that the critical initial seconds of contact were their undoing. The halls were littered with Alphaland citizenry, either battered to insensibility or transfixed with lethal arrows.

Tilly finally snapped, "This is it, isn't it, Manuel?"

"Should be. Let's hurry." The other looked no more than a kid in his late teens, unless inspection came close enough to take in the wrinkles in forehead, the depth of intelligence in eye. He wore heavy contact lenses. Of them all, he alone seemed nervous, as though the pace of action was unaccustomed.

Tilly snapped urgently, "On your toes. There'll be action here."

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She banged her slight shoulder against the massive door.

Beyond, two Surety men were hurrying toward them, one, gun in hand; the other in the process of drawing.

An arrow winged its deadliness past Tilly, missing her by less than half a foot. It sped half way through the lead guard's throat, projecting its bloodiness behind, as the man crumbled forward to his knees, and then, gurgling, flat on his face, his feet drumming agony against the heavy carpeting.

The second got one bolt off, before being transfixed with three more arrows; then he, too, went down.

"All right," Tilly said. "Gonzales, it's all yours. Fast now. We'll hold until you're through. But according to your speed, or lack of it, we'll get out of here, or not."

Manuel Gonzales unslung a purselike affair from over his shoulder. He put it down carefully on a heavy table, and began hurriedly bringing its contents forth, to lay them in semi-orderly rows on the table. His mouth was dry and he licked his lips often, with little result.

He held an extension over his shoulder, without looking to see who might take it. "Plug this in," he said, his voice high. He cleared his throat. His hands were flying.

Tilly was standing in the middle of the large room, her bow in hand, an arrow on the string.



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Combs, cool as winter wind, came to the assistance of Manuel Gonzales, who was occasionally fumbling his gadgets.

Combs said, soothingly, "How does it work, Manuel?"

Gonzales said, even as he tinkered, "It discharges a condenser-bank through a small coil, generating a very powerful magnetic pulse, then a charge of high explosive is rigged to implode the resultant magnetic field to produce an empire-size flux density. Just a single 2-microsecond pulse—but it makes every computer-magnetic-memory within half a mile 'forget' all its information and the data stored in the machine at the time, necessitating complete re-programming. It also wipes most of the magnetic tape around, lousing up records no end."

Combs said, admiration in his voice, "You lost me somewhere back there, but it sounds swell. We should've tried to get it into the War Ministry."

Tilly, still standing, arrow on string, said, "No. Finance is even better. You don't fight wars with soldiers any more, not primarily."

Alshuler came in from the corridor. He said, his face strained, "Zimmerman copped one. That single bolt the guard got off."

Tilly looked at the two technicians. "Try to hurry it, fellas." She went out into the hall.

Several of the so-called Alpha Scouts, their bows at the ready, were standing guard. Two of them were bent over Zimmerman, who was in a sitting position up against the wall. His face was unnaturally pale and blood had already soaked through the improvised bandages.

Tilly said, "How bad is it, Zim?"

"It's pretty bad," he grated. "I'll never make it."

Tilly said to those working on him, "When we run for it, you two carry him. The rest of us will cover."

Zimmerman shook his head. "It'd jeopardize everybody. Besides, if they got me, they'd stick me under Scop and I'd betray half our people in town. I'm expendable, Till. Finish me."

Her lips thinned back over her artificial buckteeth. She stared down at him.

Finally she said, "Anything you want passed back to home?"

He shook his head again. "No. I said my famous last words when I left to come over here. I knew there was the chance of never coming back."

"All right," she said, so low as hardly to be heard. Her eyes went suddenly to Bernal. "It's an order, Bernal!"

An arrow smashed the heart of the fallen guerrilla.

Gonzales and Combs came running from the inner room.

"Let's go!" Combs yelled.

They dashed down the corridors, back the way they had come. As they progressed, their other groups merged with them, coming on the run from the different points to



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which they had scattered when first entering the building. Three were missing, besides Zimmerman.

They sped out the entry, through which they had entered a scant ten minutes earlier, down the stone steps. There were shouts and sounds of confusion behind them, but none bothered to turn and check the pursuit.

At the bottom of the steps, a supposed tourist hover-bus edged up to the curb, even as they approached. They piled into it; on the surface, a gang of teen-agers, costumed as though members of some sort of club.

Combs was last, almost missing as the bus took off, being pulled in the door at the last moment by Trilly Trice.

"Thanks," he puffed. "Remind me to marry you some day."

"Tu, tu, tu," she told him. "Already spoken for."

He looked at her, sourly. "Oh, too bad."

The bus sped around a corner, lit out at full speed down a boulevard, spun around another corner.

Alshuler, at the rear, called, "Oh, oh, some kind of Surety car."

Tilly yelled back to him, "Noise makes no difference now. Take it!"

A moment later, a shattering blast tore up the street behind them.

Alshuler looked admiringly down at a small grenade in his hand, the twin of the one he had just thrown. "Zen!" he said. "Ordnance is really turning them out these days."

Tilly clucked. "Watch your patriotism, Al. Those aren't the products of *our* Ordnance plants. They were liberated from a local armory. How'd'ya think we'd ever get such equipment over the borders with the kind of security they have here?"

## VI

Number One was doing his best to relax in the comforting presence of Pater Riggin. He sipped a glass of Amontillado, imported for his sole use from a far land once called Spain.

The Temple monk said softly, "So the die is cast and there is no return."

Number One shifted in his comfortable chair. "Was there ever a return, Rig?"

"Possibly—according to where you start from, Jim."

The other shook his heavy head. "There is never a return, Rig. No matter how seemingly powerful you are, it's an illusion. You're pushed, you don't march bravely forth."

"I'm not so sure I follow you," the plumpish Temple monk said. They were seated in the living room of the Presidor's private quarters, as before, an old-fashioned wood fire in the fireplace.

Number One looked at him strangely. "Do you think that Caesar could have changed his mind and *not* crossed the Rubicon? Do you think there was any alternative to Bonaparte's seizing power on the



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18th Brumaire? Or take Washington. Do you think he sought power? He was a retired country gentleman with no ambitions to become a commander-in-chief of ragged revolutionary troops, nor even, later, first president of his country. But what else was there for him to do?"

Pater Riggin looked at him for a long moment. "So you didn't wish power, Jim."

"No. It was thrust upon me. When the collapse of the past regime came, power lay there on the streets for anyone at all to take up. Should I have left it to the Karlists, or some other crackpot group?"

The Temple monk patted his rounded tummy and said mildly, "I have heard the story before, Jim. If I didn't do it, somebody else would. Also, I did it for the sake of others."

Number One scowled. "Sometimes I wonder what you really think about me, Rig. And more often I realize I don't want to know. You're the one man I feel I can talk to. But, carrying out along this line, what could I have done otherwise? You know my career as well as I. Where could I have taken this turning, rather than that?"

Pater Riggin shook his head. "I doubt if you have ever read of a Yugoslavian named Djilas. However . . ."

"Yugoslavian?"

"A small country in Europe in the old days. During the Second War, it went communist. Djilas was one of its top revolutionists, the right-hand man of the dictator-to-be, Tito. Djilas spent years in the government prisons, later fought for more years in the mountains as a partisan. When the war was over and his people in power, he became aghast. His comrades quickly enriched themselves, entrenched themselves in lucrative government jobs for which they were often unsuited. Tito himself lived like an Oriental potentate. When Djilas, still the idealist, refused to conduct himself similarly and attempted to expose this New Class that had arisen from amongst the supposed selfless leaders of the proletariat, he was imprisoned for his pains."

"Your point?" the Presidor growled, finishing his wine and reaching for the humidor.

"I'm not sure I have one," his old friend said wryly, "but I find in history few idealists who can resist wealth and power, once they are in grasp. It applies, of course, not only to political figures. Have you ever seen a religion which, once come to acceptance, does not indulge its leadership? My studies tell me most of the great religions were founded by men who foreswore material goods, but, once the religion was established, their following priests seldom were found among the poverty stricken."

Number One looked at him thoughtfully. "I sometimes wonder that the United Temple puts up with you, Rig."

His companion chuckled wryly,



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"You should be able to figure that out, Jim. I am your closest companion. My immediate Bishop, and His Holiness himself, might occasionally become impatient, but they can't afford to bar from conclave the man who has Number One's ear."

"I've told you I don't like that term," the Presidor growled.

Before the other could answer, a light flickered on the door and a screen hummed.

Number One glowered at it. "What is this, a shuttle station? I gave orders not to be disturbed. Once this damned war begins, I'll be fortunate to sleep four hours a night."

"Ignore it." Pater Riggin shrugged plump shoulders. "Why do you have deputies?"

The other grunted, pressed a button set into the arm of his chair and came to his feet, scowling, to face the door

It opened and Jon Matheison, close pressed behind by Mark Fielder came hurrying through. The former's face was livid with anger . . . anger and what would seem despair.

Number One said curtly, "What is the meaning of this intrusion, Coaides? The Crusade is scheduled in a few days. I have need for rest and contemplation."

His Deputy of Finance began to say something, but Mark Fielder cut in, even as his eyes shifted about the apartment, taking in this, taking in that, resting briefly on Pater Riggin.

The Surety man said, "The war, evidently, is already on."

"What! You mean they've attacked first!"

Matheison said, "An unprovoked attack on my commissariat. I have still completely to evaluate the disaster."

Number One was glaring. "Make sense, you two! What has happened?"

His financial head took a deep breath. "So far as we can make out, a group of a hundred or more Betastani, armed with bows and arrows, broke into the Treasury Building this afternoon. They . . ."

"Armed with *what*?"

"Bows and arrows," Fielder said grimly. "Their value as a secret weapon applies not only to this romp. The damned things don't make a sound, produce no muzzle-flash, don't affect capacitance-alarm circuits so they can be back-trajectoried to locate their source. They ring no alarms, since they're of wood rather than metal. The funkers even had hard plastic arrowheads on the nardy things."

"The Treasury!" Pater Riggin blurted. "Why the Treasury? You mean they made off with . . ."

Matheison shot a contemptuous look at him. "Gold? No, of course not. Even if there had been a good many more of them they couldn't have taken off enough gold to make



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any difference, and getting down into the vaults would have been impossible."

"Then what *did* they do?" Number One rasped.

Uninvited, his face in despair, the Deputy of Finance sunk down onto a couch. He shook his head unbelievingly. "They used some sort of device, I didn't even know could exist. I don't know how it works. I don't really know what they did. But all our data banks are scrambled. Scrambled, I tell you. We have nothing. Nothing we can depend upon."

Number One felt a certain relief. He hadn't known what sort of emergency, what tragedy to the Alphaland cause, had been brought before him. This seemed comparatively picayunish.

He went over to the bar and poured a drink, brought it back and handed it to his visitor. "Drink this," he growled. "You're upset." He switched his eyes to his Deputy of Surety. "Just what happened? You two don't make much sense."

"The details aren't in," Fielder said, his voice returning to its usual suavity. "However, it would seem that a large body of Betastani agents, carrying weapons deliberately designed not to affect our Surety alarms, invaded Co-aide Matheison's offices, in the records wing of Finance."

"Are government offices that vulnerable?"

Fielder made a gesture of helplessness with manicured hands. "One wouldn't expect an attack to take place at such a point. The romp was unprecedented, in any case, but the last locale one would expect would be the innocuous records offices of the Finance Commissariat."

"Go on!"

"They killed several of the few guards who are posted at Finance, and then set up a device that has wiped every memory tape within blocks."

"Did you catch any of them?"

Fielder shook his head, his expression empty. "They must have been highly picked men. Dedicated. They," he hesitated, "finished off their own wounded."

A look of distaste went over Pater Riggin's face.

Number One came back to his Finance chief. "All right, what does it mean? What difference does it make? Why'd they bother to go to the trouble?"

Matheison stared at him as though unbelieving. "Difference does it make?" For once his indignation overrode his awe of his leader. "But they were the banks of all our records. There are no others."

"Bring it down to a layman's understanding, and cut out all this jetsam!" Number One growled.

Matheison took a deep breath. "Your Leadership, the Alphaland monetary system is based on the gold Alpha. In ancient times when a coinage system was first hit upon



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on Mother Earth, in Lydia, Asia Minor, to be exact, about 700 B.C., it was very simple. The coinage, both gold and silver, was literally worth the weight of the precious metal involved. Even when paper money evolved, the bills were backed by gold, or silver. Thus a person holding a piece of paper money could go to the treasury that had issued it and demand the amount of gold."

"I am not a schoolboy," Number One rumbled. "Get to the point."

"Your Leadership, as matters financial became more elaborate what with a burgeoning commerce, international trade, and so forth, we ceased dealing, more and more, with gold or silver itself and most transactions took place on paper. But always with the gold in the background: buried away in vaults, but always ultimately backing banking transactions. Centuries ago, the credit card began to evolve, slowly at first, but with growing speed as business machines, computers and data-processing developed. Until today actual coinage is practically unknown. Even an employee nowadays is not paid directly. His salary automatically goes into his account. When he spends money, he simply presents his universal credit card, and the sum is deducted from the proper account."

The Presidor's eyes widened.

"Everything, but *everything* is handled by our computers and their auxiliaries. In actuality, only some fifteen percent of Alphaland's currency is backed by the gold in our vaults, but that has been deemed enough. If a foreign nation finds itself holding a considerable credit of Alphas, it can demand, and receive, the amount in gold bullion. But don't you see what has happened? The magnitude of it? There are no records whatsoever, except those we kept in our data banks. A common yoke who had savings of no more than five Alphas to his credit, now has no record to prove it; the wealthiest banker with credits of a hundred million Alphas is in the same position. Nobody has any record."

"What it amounts to," Mark Fielder broke in, "is that these Betastan criminals have robbed the nation of endless billions of gold Alphas. At the present time, for all practical purposes, every citizen in Alphaland is bankrupt!"

"That's not exactly the way I'd put it," Matheison said weakly.

Marshal Croft-Gordon, in full rage, stormed into the room without announcing himself.

"What in the name of Zen is all this! How can you prosecute a war without funds! We're no longer in an age when the citizenry simply grab up their own swords and spears and dash out to confront the enemy! My forces expend half a billion a week just remaining at peace! What is this!"

Number One didn't remember to glare at the cavalier intrusion.



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It was Pater Riggin who ejaculated, "Holy Ultimate!"

They stood before the charts in Number One's secret command post: Number One, himself; Marshal of the Armies Ropert Croft-Gordon; Deputy Mark Fielder of the Commissariat of Surety; Temple Bishop Stockwater; Academician Philip McGivern, of the Department of Socioeconomics; Deputy Jon Matheison of Finance; Ross Westley of the Commissariat of Information. All, save the latter, the inmost associates of the Presidor of the Free Democratic Commonwealth of Alphaland.

Number One said grimly, checking his wrist chronometer, "Very well, the ultimatum has been issued. I assume, Marshal, that your forces are ready to move."

Marshal Croft-Gordon cracked his swagger stick against his leg. "And have been for two months. My own opinion is that this ultimatum is a mistake. We should have struck as I suggested in my original plans, based on the first computer results."

Number One looked at him expressionlessly. "Nobody asked for your own opinion, Marshal. Please bear in mind that the ultimate command of the Alphaland military is in the hands of the Presidor. This seems increasingly to escape you, Marshal."

"Yes, Your Leadership," the marshal said stiffly.

Number One said as an afterthought, "Co-aide Fielder, I assume you have taken the precaution of rounding up all nationals of Betastan."

For the moment, the Surety Deputy said nothing and all eyes went to him.

"Well!" his leader growled.

"Your Leadership, it has been obvious for some time that the war was inevitable. For that reason, undoubtedly, a large number of enemy aliens have long departed. When my men took the obvious steps of arresting those remaining, they found only a handful of elderly people, and a few score of infants."

The United Temple representative to the Central Comitia said in complete surprise, "But, my son, there are thousands of Betastani residing in this city alone."

Mark Fielder looked at the Temple bishop, "There were, but no longer."

The aged Philip McGivern rubbed his graying goatee and muttered impatiently, "Without doubt, the majority have fled to the countryside in anticipation of Betastan bombing."

Marshal Croft-Gordon said, "There'll be no enemy bombing of Alphacity. They'll never get through our border defenses—not to speak of those of the city."

Fielder said easily, "At any rate, those of the enemy nationals still in Alphaland will be seized soon enough. They can't hide for any ap-



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preciable time. Among other things, the patriotism of our own civilians will prevent them from keeping under cover."

"I hope you're right," Ross said.

Number One looked at him bleakly. "Clarify that, Co-aide!"

Ross said doggedly, "I warned you that a month was insufficient time to prepare our people for a war of aggression."

"War of aggression?" Temple Bishop Stockwater protested. "My son, your term is most distressing. This Crusade against the un-Godly is to *repel* aggression and come to the aid of those who would throw off the bonds of the evil Amish-Karlist regime that now subverts the freedom of the Betastani people."

Ross said, "We've dropped that Amish bit, Your Blessedness. Or, at least, we're phasing it out as rapidly as we can."

The Temple bishop said in indignation, "But these Amish are non-believers."

Number One rumbled, "Let's stop all this jetsam!" He looked at his chronometer. "Ten minutes to go." He turned to his military chief. "You are confident of complete destruction of the primary targets?"

Marshal Croft-Gordon blew out his cheeks. "The computers indicate a three time over-kill. The ten most populous cities, including the capital, New Betatown. The ten largest industrial complexes. The forty largest airports, both military and civilian. All military bases with a personnel of more than one thousand."

"I am aware of the targets," Number One rumbled. "But are you positive of complete destruction?"

"A three time over-kill, Your Leadership."

The aged Academician McGivern said musingly, "It will provide an excellent basis for their economy of the future. A pastoral economy. We should never, Your Leadership, allow them to recover from this destruction of both their cities and industrial complexes. Our own population centers, so our good marshal assures us, will remain untouched by what remaining aircraft and missiles they might possess. In the future, we will supply what manufactures the Betastani need."

There was a humming of the door and an aide went to check it.

He returned with a confused looking colonel who snapped to attention upon confronting the marshal. "Sir, a report."

Number One growled. "You will render your report directly to me, Captain."

The newcomer looked at him, startled. "Uh, it's Colonel, Your Leadership."

"Your mistake. From now on, it's Captain. In the future, I suggest that in my presence you address me first, not a co-aide, Captain."

"Yes, Your Leadership."

"Now, what's your message?"

"Your Leadership, there has been



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a response to your ultimatum. In fact, the response is being broadcast by every means from the Betastani to the whole planet."

"So soon? Impossible!"

Number One darted a glare at his marshal. "Are the missiles and bombers on their way?"

"No, Your Leadership. We had another five or six minutes to go." The marshal looked blank. He shot a look at the military charts on the walls. The points marked in red were to have been struck.

Number One turned his glare back to the ex-colonel, now captain.

"What kind of response?"

The captain brought up a military report. "Your Leadership, they have declared their ten largest population centers open cities. Each of these cities has surrendered to you."

"Surrendered!" the marshal barked. "We have as yet landed not a single man!"

"Silence!" Number One said curtly. He turned his rage on the captain. "What else?"

"Your Leadership, a whole series of industrial complexes, industries, mills, mines, have also all surrendered. Declared themselves open areas, the equivalent of open cities.

"You mean the Betastan government has surrendered?" Number One demanded unbelievingly.

"Praise to the Holy Ultimate," the Temple bishop intoned reverently.

"Shut up, confound it!"

The captain swallowed. "No, sir. That doesn't seem to be it. It's just these individual cities and industrial complexes have declared themselves open and have surrendered. They're awaiting your occupation forces, Your Leadership. All military units have been withdrawn into the countryside."

Number One, for once, was uncomprehending. For a moment, it looked as though he was about to relapse into one of his characteristic moods of contemplation, but then he tossed his heavy head abruptly. He turned to Marshal Croft-Gordon and Deputy Fielder.

"Your opinions, Co-aides?"

Croft-Gordon bit out, "Send the bombers! This is a trick. Level them!"

Ross Westley, with formerly unknown vigor snapped, "No! Didn't you hear this man? The Betastani have broadcast their surrender to the whole planet. Not a person of good will, not only in the neutral countries but in Alphaland itself, would stand for an attack upon those cities now!"

"All the larger cities have surrendered?" McGivern said in shocked tones. "Why, the computers said the war would be over in less than three months, but at this rate, it won't last three weeks."

"At this rate, it won't last three days," Mark Fielder amended. "There's something awfully wrong, here. I don't like it."

TO BE CONCLUDED



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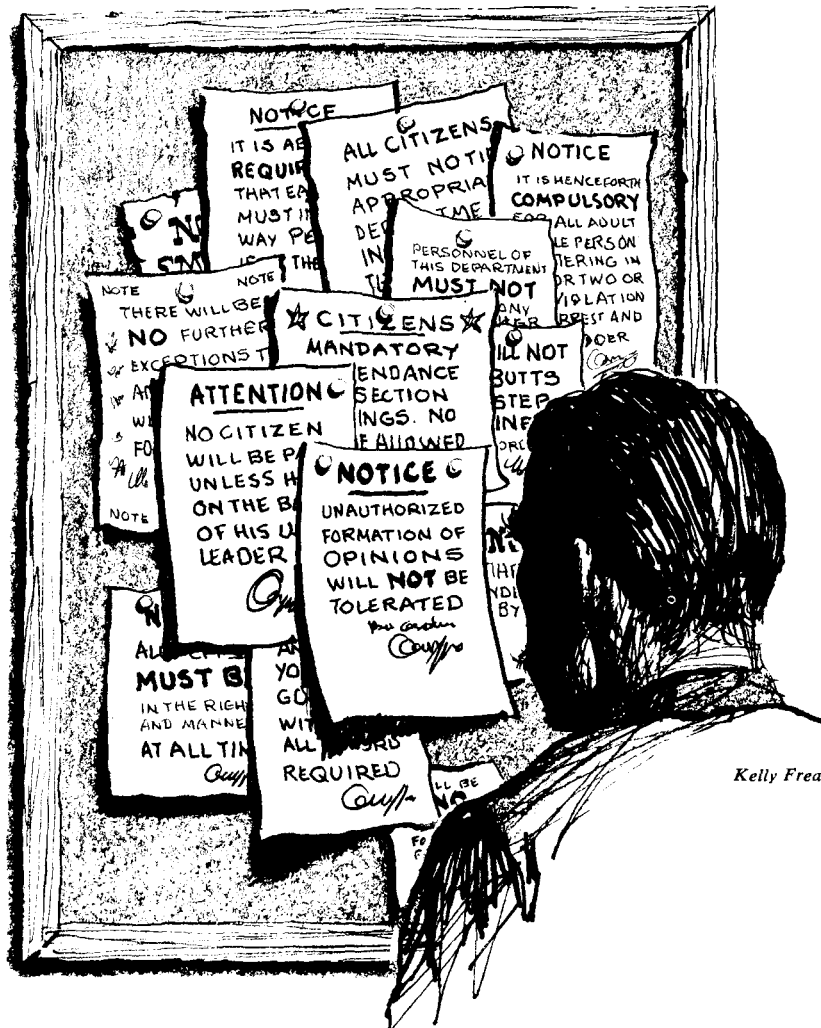


Kelly Freas

# The Double-Edged Rope

*There are many ways in which a system can be*
*"Everything which is not compulsory is forbidden."*
*Some uses might seem quite alien to us . . .*

**LLOYD BIGGLE, JR.**



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It was already several minutes past the hour of noon. From the little restaurant came an outpouring of tantalizing, palate-tingling odors that brought the hungry passerby to a hypnotic halt and caused those who had already eaten to slow their steps and sniff enviously.

In all other respects the restaurant was thoroughly unsavory—the square it faced upon, its appearance, its proprietor, its one tottering waiter, most of its customers, and the swarms of flies that passed freely through the open doorway. Its name, *Le Favori des Rois,* was more than merely disreputable. It was, in the enlightened atmosphere of a People's Democracy, a treasonous reminder of hated royalty combined with a degraded capitalistic penchant for exaggeration.

But the royal blue letters had long since peeled and faded to illegibility. Few people noticed them and no one cared, least of all the proprietor, who was a capitalist himself and, therefore, politically suspect—the fact that his soup was the best to be had south of the Danube notwithstanding.

The foreigner was seated at his usual table when Serge Marzoff entered the restaurant. Of all the population of this teeming capital city, only the enigmatic Mr. Jones rated the privilege of a reserved table at *Le Favori des Rois.* He arrived in a taxi at the same hour each day, and he tipped well, a combination of circumstances that not only guaranteed him his favorite table, but even, on occasion, procured for him a wilted bunch of flowers for a centerpiece. Mr. Jones was indeed the favorite of *The Favorite of Kings.* For all Marzoff knew, he could have been the only patron of that filthy little restaurant who bothered to tip at all.

Marzoff's own entrance was carefully timed. Mr. Jones had arrived, he'd had time to order his meal and to light one of his expensive foreign cigars, and from this point all would proceed according to custom: Marzoff would look about the crowded restaurant in dismay. Mr. Jones would leap to his feet and offer to share his table. Marzoff would decline to inconvenience his distinguished friend. Mr. Jones would insist, and would lead the protesting Marzoff to the side of the room and get him seated. Then they would eat together, and talk.

It happened that way once each week—though not, to be sure, on the same day. Mr. Jones possessed an easygoing joviality and sometimes he seemed a bit simpleminded, but it would not do to stretch his credulity that much.

Unfortunately, the events of this day did not follow their usual smooth pattern. Mr. Jones was reading his mail, and he did not see Marzoff enter. Marzoff gave the room a casual survey, and to his horror he found an empty table directly in front. He cursed his bad luck and pretended not to see it.



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The vulture-eyed proprietor moved to meet him, executing a complicated series of starts, stops and sidesteps to maneuver his protruding stomach through the narrow gaps between tables. He touched Marzoff's arm, and indicated a vacant table. Marzoff ignored him. Mr. Jones continued to read his mail.

The proprietor jerked at Marzoff's arm. Marzoff nodded condescendingly, "I prefer a table at the rear," he said. The proprietor swept the room with a glance, and threw up his hands. Into this impasse darted two new customers, a man and a woman, who saw the empty table and pounced upon it. The proprietor turned away, and at that moment Mr. Jones looked up, saw Marzoff, and leaped to his feet.

The relieved Marzoff permitted Mr. Jones to lead him away. He had narrowly averted disaster—double disaster, for had he allowed the proprietor to seat him at that unfortunately vacant table he should have failed in his assignment, and also committed himself to pay for his own meal.

"Nice to see you again," Mr. Jones murmured. He gathered up his letters, and stuffed them into an inside pocket.

"Likewise," Marzoff said. He could relax, now, and order from the top of the menu, with the assurance that the food would be paid for by the amazing device that Mr. Jones called an expense account. "And you have news from home?" he asked, ducking as the waiter unsteadily negotiated the passage by their table with a heavily-laden tray.

"Nothing sensational," Mr. Jones said. "My daughter informs me that I am to be a grandfather—for the fifth time. There is a heat wave in my home town and they would like some rain. Who wouldn't? A third cousin on my mother's side, whom I do not remember, has had a heart attack. My nephew is interested in flying saucers, and would like me to find a cheap telescope for him so he can watch for them. What's the matter?"

Marzoff had made a face. "Capitalistic nonsense," he said.

Jones puffed peacefully on his cigar. "I seem to recall hearing something about flying saucers over this country. Rumors, of course. You people at the Censorship Bureau wouldn't allow anything like that to get into print."

"The purpose of the Censorship Bureau," Marzoff said stiffly, "is to see that the people are not deluded by lies and idle rumors."

Jones made a conciliatory gesture with his cigar. "Of course. What other purpose would justify the existence of a Censorship Bureau? Nevertheless, a lie is sometimes a relative thing. There are degrees of falsehood, just as there are degrees of truth. Surely of all people a censor should be aware of that."



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Jones's blue eyes fixed upon Marzoff with an expression that seemed guileless, but Marzoff twisted uneasily in his chair. He liked the foreigner, but he did not trust him. Jones always seemed to be joking when he was most serious, and serious when he was joking, and in either instance he could talk the bone out of a dog's mouth.

"Rumors," Jones went on, "are a natural creative expression of the people. It is not wise to stifle such an important communication, for in most rumors there is at least a grain of truth. Is this not so?"

Marzoff shrugged his shoulders. He was not going to be trapped into admitting anything.

"Supposing," Jones went on, "that one of your peasants were to see a flying saucer land in some out-of-the-way place. What would he do?"

"Nothing," Marzoff said. "Because he wouldn't see it. Such things don't exist."

"How do you know?" Mr. Jones said, pointing his cigar at Marzoff. "But you are probably correct that your peasant would do nothing. He has been told that such things do not exist; therefore, he would not believe his own eyes. If he were startled enough to run to the police, what would happen? Either he would be tossed into prison for discussing a forbidden subject, or he would be ridiculed. Naturally he would never mention flying saucers again.

"In my country it would be different. Word would be spread quickly. Newspaper men would come with cameras. The authorities would investigate. Scientists would investigate. Even if they suspected that the man was lying, they would investigate. The truth would be confirmed, or the hoax exposed—and quickly. I think this is much the better way. Censorship is a two-edged sword. Or perhaps it is a two-edged rope. It can stifle that which it is supposed to protect."

"That is ridiculous," Marzoff said. "Who needs protection against a thing that does not exist?"

To his intense relief he saw the waiter approaching. The old man placed a steaming plate of goulash in front of Jones, wiped his hands upon an apron that would never wear out from too-frequent washings, and silently took Marzoff's order. He limped away.

"Think it over," Jones said. "If this planet is ever invaded from outer space, it won't be my country that suffers the first blow. It'll be one of your communist countries—though not, I think, your friends the Soviets, because of their admirable technology. It'll be a country such as yours, backward, with an imperfect communications system, and with a people long-trained to believe only what they are told to believe." He took a spoonful of goulash and sighed. "Amazing. In Paris or New York that cook could earn a fortune."

Marzoff sighed also, so relieved was he that Jones had finally changed the subject. His own food



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arrived. They ate; they discussed the weather, which had been warm; they considered the possibility of rain, which seemed remote; they talked at length about the restaurant's wine, which was very bad. They finished eating. Jones gave Marzoff a foreign cigar, and insisted upon paying his bill. Marzoff protested, and Jones explained once again about the magic of his expense account. They parted at the door of the restaurant, Marzoff to walk back to his office, and Jones to look for a taxi.

Marzoff was disturbed. He rolled a form into his typewriter, the same form that he filled out after each of his weekly meetings with Jones. He gazed thoughtfully at his keyboard. Why this sudden onslaught about flying saucers, and where would Jones get the idea that a peasant would be afraid to mention a flying saucer if he saw one?

Such a suggestion reflected on the morale of the populace, and was, therefore, treasonable. If he reported the details of that conversation, Jones would undoubtedly be thrown out of the country. He would be sent home a failure, to whatever fate the capitalistic rulers dealt out to failures. Probably he would be shot, which would be unfortunate.

On an impulse Marzoff walked over to the board where new regulations were posted. He had been out of the office all morning, and it was possible . . .

There it was: Flying saucers.

Marzoff read, and recoiled in horror. Flying saucers . . . written or verbal discussion . . . public or private . . . *the death penalty!* And he, Serge Marzoff, had just been discussing flying saucers in a public restaurant with a foreigner!

He staggered back to his desk and buried his face in his hands. Could they have been overheard? As usual they had kept their voices low, and in the noise and confusion of the restaurant—no, he thought not. But he was obligated to report their conversation, and if he did, was it not possible that he would be arrested along with Jones? Such things had happened. He would have to write an innocuous report and hope for the best. And the next time he saw Mr. Jones he would speak sharply to him for all but placing his silly double-edged rope around both their necks.

Marzoff typed. Mr. Jones had commented on the backwardness of the peasant-comrades, and had been interested in Marzoff's exposition of how the present Seven-Year Plan would correct that. Mr. Jones had many kind things to say about food in the restaurants of the capital city, but he did not like the native wines. Mr. Jones had complained of the arbitrariness of the Censorship Bureau, and Marzoff had taken some time to explain that drastic action was sometimes an unfortunate necessity. And so on.

He ripped the page from his type-



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writer, signed his name, and walked timidly into the presence of the Bureau's director, Dimitri Storavieff. Storavieff said, "Ah, that newspaper correspondent," glanced at the report, and scribbled his initials. He dismissed Marzoff with a nod. The report would, Marzoff knew, be scrutinized intently by many interested persons, and would eventually find its way into a bulging file, to join Marzoff's other reports and those from various sources—one of which was the sly young man who sometimes followed Jones to the restaurant.

Marzoff returned to his desk. A stack of copy had been plunked there during his absence, but he was much too perturbed to get down to work immediately. Could it be, he asked himself, that Jones was trying to tell him something? He dismissed the thought as ridiculous. If Jones had any information of importance, he would impart it to someone of importance. Foreign newspapermen had contacts with all manner of high officials, and Marzoff was a nobody. It was true that his father had been Minister of Agriculture before he had been unfortunately assassinated by capitalist hirelings, and his uncle was Deputy Director of the Police, but aside from obtaining him his lowly position in the Censorship Bureau this had not altered Marzoff's insignificant status. No, if Jones wanted to pass along information he would not pick Marzoff.

Then what was his purpose?

Marzoff shuffled through the papers on his desk, and put them down again. He fussed with the keys of his typewriter. Suddenly the answer came to him, so startling, so overwhelmingly important, that he sprawled back in his chair and stared open-mouthed at the ceiling. "So!" he murmured.

So Mr. Jones had been fishing, dangling a tempting bait to see what would come to the surface. He had been trying to find out what Marzoff knew. Why had he picked that particular moment, just after the flying saucer order had been issued? The order itself was the reason. No doubt it was unexpected. It took the enemies of the State by surprise, and within two hours Jones was violating it in a public restaurant in an effort to find out what was behind it.

"So!" Marzoff murmured again. So there *were* flying saucers, or something like that. They *were* a capitalistic plot, and Jones was connected with it!

Five minutes later Marzoff stood again in the presence of the director. Storavieff glanced up impatiently. "What is it now?"

"Sir," Marzoff said in a bolder tone of voice than was customary with him, "I think I have discovered a horrible conspiracy against our glorious People's Democracy and our Glorious Leader."

"One of the newspaper articles? Let's see it."

"It isn't that. It is an outside mat-



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ter that I myself have discovered."

"Then it concerns the police, not the Director of the Censorship Bureau."

"True. But it is best to be certain, and I am not yet . . . that is, I am certain, but there is lacking . . . I mean—" Marzoff flushed, and broke off in confusion.

Storavieff looked at him sharply. "What is it you want?"

"A leave of absence," Marzoff blurted. "A few days, to investigate."

Storavieff nodded. "Take a week. If that isn't enough, let me know."

Marzoff beamed. "Thank you, sir."

"But clean up the work on your desk before you go."

The next day Marzoff was sipping bad wine at a sidewalk table across the square when Mr. Jones arrived at *Le Favori des Rois*. He reflected sadly that he had only to present himself and the fabulous expense account of Mr. Jones would automatically provide the best that the restaurant could offer. And would he not be better able to observe this suspected enemy agent at close range?

He thrust the temptation aside, and turned his thoughts to what he knew about the art of trapping spies. This was, unfortunately, very little. Everyone knew that the People's Democracies were infested with such traitors, but to Marzoff's knowledge there was no manual of instruction detailing easy methods for catching them. He continued to sip wine and think, and when Mr. Jones at last strolled away in search of a taxi Marzoff had accomplished nothing beyond a mild and extremely distasteful intoxication.

He finished his wine, and walked slowly to the end of the square and back. He bought a small loaf of bread and munched on it as he made a complete circuit of the square. Finally he returned to his seat at the sidewalk table and—for want of a better excuse—ordered more wine.

"Suppose," he asked himself, "just suppose that Mr. Jones's professed admiration for the food at *Le Favori des Rois* is feigned. Very well. Then why the daily visit to this sordid neighborhood?"

Obviously he would be coming here to meet someone. The proprietor? A logical choice, and, therefore, unlikely. The proprietor had no physical contact with his patrons. On the other hand—

*The waiter!*

It would be a simple matter for the waiter to pass messages to Jones along with the food: and for Jones to leave a message under his plate when he finished eating.

He leaped to his feet and set out to explore the neighborhood. His wanderings terminated in the alley behind the restaurant, a narrow little passageway so foul-smelling that it forced him into a hasty, nauseated retreat. He returned to the sidewalk table. Through the open restaurant



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doorway he could sometimes see the old waiter tottering about with his comical half-limp.

Darkness came at last. Marzoff, lurking in the shadows, watched the other business establishments close, one by one, watched the square become deserted, watched lights wink out in the apartments above the shops. Midnight came and went. Finally even the stubborn proprietor of *Le Favori des Rois* accepted the inevitable, and closed his door with an echoing slam. The rusty bolt shrieked a protest as it was driven home. Marzoff, his heart thumping violently, raced down the square to the jagged crack where the alley vented its vile odors. Such Divine Providence as deigned to watch over a People's Democracy was on his side, for the alley of *Le Favori des Rois* had only the one exit.

Minutes passed, and then the waiter shuffled into view. Marzoff clung to the shadowed wall of a building, and allowed him to reach the end of the square before he started after him.

He was led on a stumbling, nightmarish ramble through narrow, unlighted streets. Once he tripped over a metal object and fell with a crash that should have rattled the nearby windows. The old waiter was evidently deaf as well as lame, for he never looked back; but only his hesitant, uncertain pace enabled Marzoff to keep close to him in the darkness.

Finally he turned into a narrow court, loomed for a moment against darker shadows, and disappeared. Marzoff sprinted after him. As he reached the end of the court strong arms seized him, flung him to the ground, pummeled him. He came up fighting and was instantly slugged into unconsciousness. Minutes or hours later he opened his eyes in a crowded cell with a single, high, barred window, and learned that he was in the hands of the police.

"Your name," the officer said, shuffling Marzoff's papers, "is Serge Marzoff?"

"It is."

"My assistant informs me that you refuse to speak with such an underling as himself. Is my modest rank sufficient for your conversation, or must I call in my superior?"

There were snickers among the bystanders. Marzoff summoned his courage, and spoke clearly. "I have information concerning an infamous conspiracy, and I demand an audience with our Glorious Leader."

The officer silenced the laughter with a gesture. "Marzoff," he mused, "you are not, by chance, related to General Marzoff?"

"He is my uncle."

A lengthy pause. Feet shuffled uneasily. "And . . . our lately lamented Minister of Agriculture?"

"He was my father."

"I see." The officer twiddled his thumbs against a background of total silence. "If you would consent to



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speak with me in confidence, I would guarantee to use my small influence to place your information before the proper authority."

"Our Glorious Leader," Marzoff said firmly.

"Take him away," the officer said.

The scene was repeated four times during the day, before officials of dazzlingly ascending rank. Each scrutinized Marzoff's papers, contemplated the undeniable importance of his family connections and the probable unimportance of his information, and had him returned to a cell. After each interview the cell improved in quality. The last one, in which he spent the night, was almost comfortable.

The second day he was left undisturbed, and his resolution slowly eroded into panic. He had absented himself from the service of the State in the pursuit of a wild speculation. He had violated an unimaginable number of regulations. He had wasted the time of several high-ranking officers, and only his connection with a family that had long-since written him off as worthless had prevented his summary execution.

He was jerked from his bed at midnight. He went trembling, expecting a firing squad, but instead he was hurried into a car and driven recklessly through the dark streets. The car halted by an unfamiliar rear entrance, and he was led through a maze of corridors and at length into a dim room where a group of men waited to sit in judgment on him. Then he recognized one of them.

"Our Glorious Leader," he murmured, and sank to his knees.

"On your feet, Comrade Marzoff," the familiar voice said. "We are all equal in our service to the people."

Marzoff stood, and kept his eyes lowered.

"You have information for me, Comrade Marzoff?"

Marzoff took a deep breath. He had known this man for years, though the Glorious Leader would certainly not remember him. He had watched him in timid admiration, back in the earliest days of his memory when the Glorious Leader, as well as his father and uncle, were fugitives from what a tyrannous government chose to call justice. The voice, and the face, were as familiar to him as those of a member of his family. His timidity fell away from him, and he stammered out the full account of his conversation with Mr. Jones, and what it had led to.

The room was silent when he finished. The Glorious Leader cleared his throat ostentatiously, and said, not unkindly, "Comrade Marzoff. Your motives are beyond reproach, your zeal is commendable, and your thinking is indescribably foolish. Flying saucers? Everyone knows they were invented by the capitalistic imperialists to cower their rebellious populations. Our citizens need



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no such fantasies to inspire their loyalty. As for your espionage work, I know I can rely on your discretion when I tell you that the man you were following is an agent of our police. You have made a nuisance of yourself, Comrade Marzoff, but you meant well, and you are the son of an old friend. You will return to the Censorship Bureau in the morning, and in the future you will be attentive to your duties there and leave the protection of the State to experts. I assure you that it is in good hands."

Marzoff nodded.

"Good."

The Glorious Leader rose, and walked away. Marzoff's admiring eyes followed him, drank in the familiar profile, gazed at his face as he turned to look back, contemplated his ears, odd-looking ears that seemed sculptured in low relief on the sides of his head . . .

*"You aren't the Glorious Leader!"* Marzoff blurted.

The man halted, all kindness drained from his face. He glared at Marzoff. Then he nodded, and that silent nod struck Marzoff as a thunderous clap of doom.

Which it was.

Dimitri Storavieff looked up: "Ah, Marzoff. You're back?"

"Yes, sir."

"And what of this mysterious conspiracy?"

"There wasn't any, sir. I'm sorry to have wasted the time."

"By the way," Storavieff said, "about the newspaper correspondent, Jones. He had an unfortunate accident last night. Most regrettable. There'll be all kinds of tiresome inquiries. It might be appropriate for you to write a note of regret to his family."

"Yes, sir."

"All right. You know what to do."

A moment later Storavieff was distracted by an altercation in the outer office. Marzoff had absently seated himself at the wrong desk. Storavieff watched him apologize and shuffle back to his proper corner.

"What odd ears that man has!" Storavieff thought suddenly. "Strange I never noticed them before."

Ears! He snapped his fingers. There was something about ears—yes, in the new regulations he was reading when Marzoff interrupted him. He returned to his desk and ran his finger down the page.

Ears. Certain capitalistic correspondents were ridiculing the shape of ears among citizens of the southern provinces. This treasonable activity was aimed at inciting racial strife in the People's Democracy similar to that which plagued the capitalistic nations. Any mention of ears was henceforth to be a criminal offense.

"And properly so," Storavieff murmured, and initialed the paper. ■



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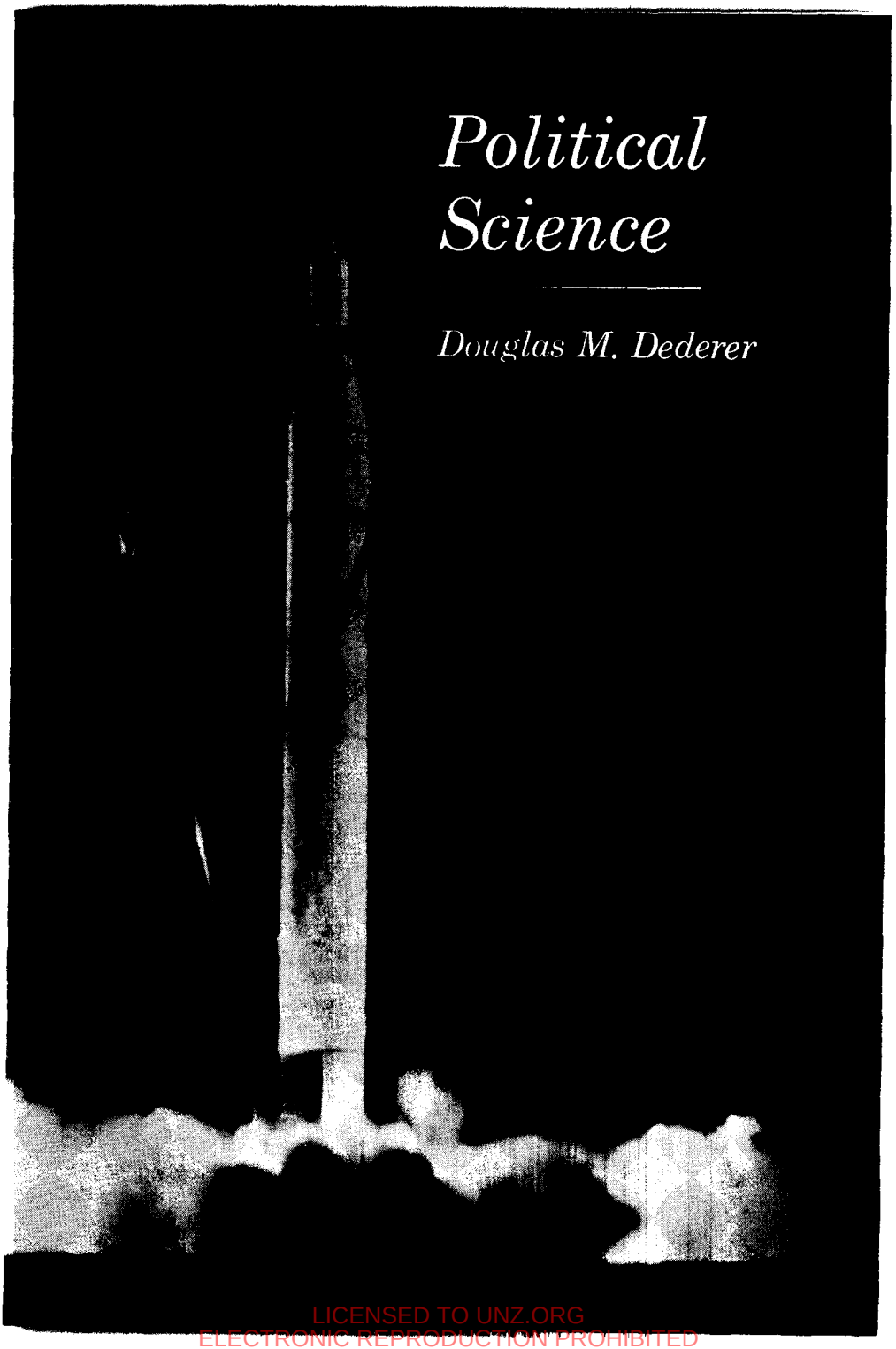
# *Political Science*

*Douglas M. Dederer*



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**"Political Science" usually means something they teach in schools that's assumed to explain how politics works; in this case, "political science" refers to what politics can do—and has done—to the United States space science development. The result is politically-oriented science—which isn't Science!**

The Sputnik-spangled winter nine years ago found the United States space prestige nonexistent and the Eisenhower Administration fumbling with Project Vanguard, a satellite program a missile veteran then described as one which could "only succeed through luck."

The Air Force was engaged in a titanic struggle to plug "the missile gap." In the fall of 1957, the first successful flights of the Atlas and Thor rockets took place. None of these, however, could match the four-ton payloads of the Sputnik boosters.

The Army, pathfinders in U.S. missile technology, possessed in its arsenal the Redstone and Jupiter rockets plus the acknowledged experts led by the former German Rocketeer, Dr. Wernher von Braun.

But the Secretary of Defense, the late Charles E. Wilson who managed the military services along the lines of General Motors which he once headed, restricted the Army's extraterrestrial activities to frontline lobs, like mortars, to travel no farther than 200 miles.

While Eisenhower evinced no interest in the "silly bauble" Russia placed in orbit, Lieutenant General James M. Gavin, the Army chief of research and development, did. So much so that on May 15, 1956, he was specifically told that "no plans or preparations should be initiated for using any part of the Jupiter or Redstone programs for scientific purposes." This direct order, General Gavin said, was written by William M. Holaday, a Wilson assistant, on White House instructions.

Orders, specifically direct ones, are not disobeyed in the military but von Braun and his missile team, led at Cape Canaveral by Dr. Kurt H. Debus, were not unaware of the Jupiter C's satellite lofting potential. Four months after the Holaday edict, the Army launched Jupiter C(No.27) nearly 800 miles into space and over 3,000 miles downrange into the South Atlantic Ocean, thus confirming the soundness of the Army's proposal for a scientific satellite program.

Originally, after a 1954 agreement to launch a satellite during the International Geophysical Year (IGY)—July 1957 to Dec. 31,

*Lift off! And Jupiter C did—*
*months too late—*
*what engineering had been*
*ready to do for a long time.*
*The delay was political.*



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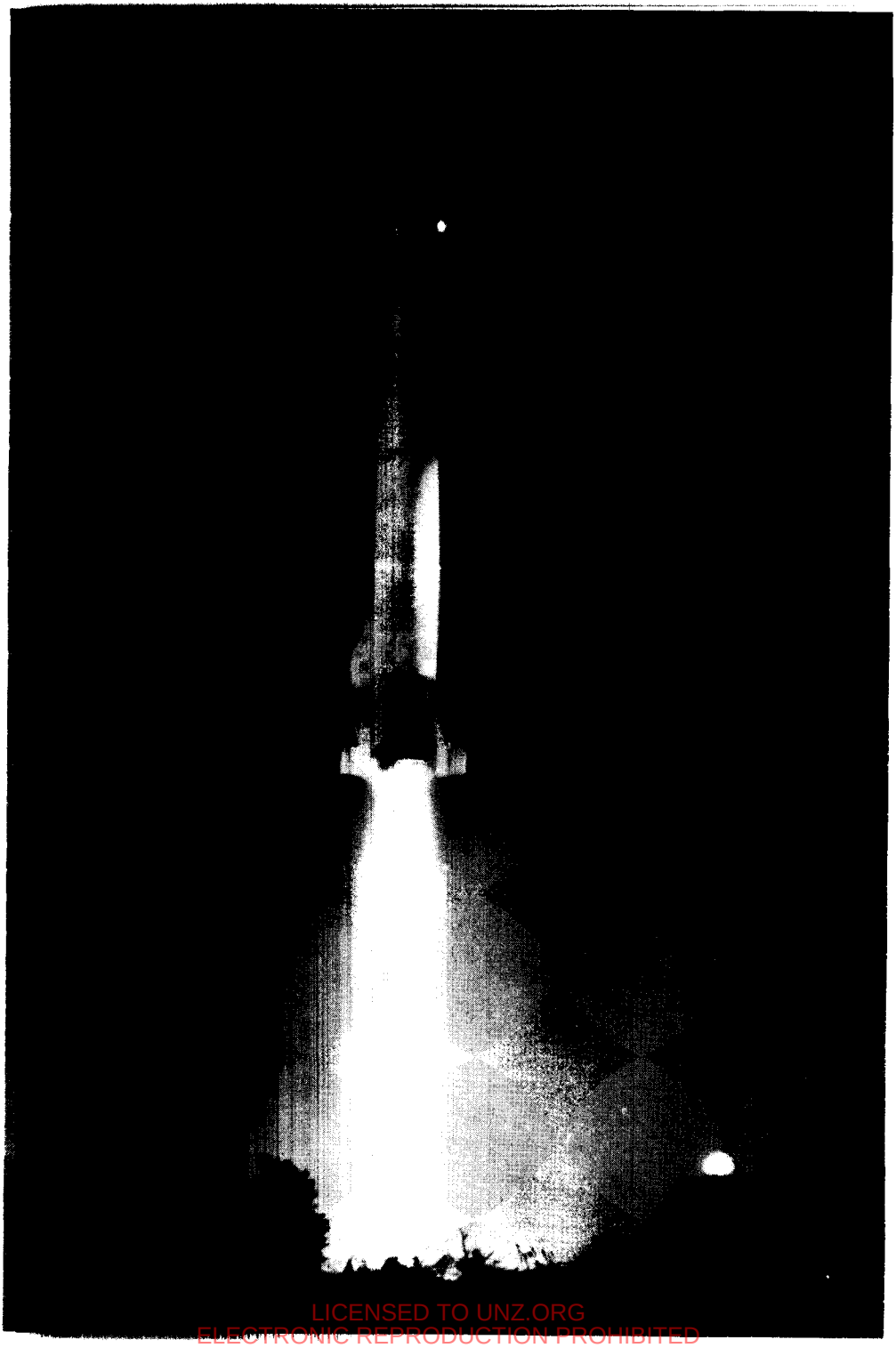

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1958—Office of Naval Research and Army Ordnance Corps discussions centered on the use of a "four-stage rocket based on the Redstone to orbit a 5-pound satellite." Secretary Wilson was briefed on Project Orbiter and ordered a committee to develop a feasibility report which was forwarded a month later in February 1955 to the White House. The Navy in March endorsed Orbiter as the tri-service venture based on the Redstone rocket which later grew into the Jupiter C.

In May 1955, the National Security Council (NSC No.5520) with White House approval agreed to "proceed with a satellite program," but it did not specify which rocket booster—the Redstone of the Army, the Navy Viking which subsequently became Vanguard, or the Air Force's Atlas with an Aerobee rocket for a second-stage. Atlas was eliminated from current consideration because its development was vital to National Defense.

Unbelievably, the Pentagon's blue-ribbon Advisory Group on Special Capabilities headed by the brilliant Dr. Homer Joe Stewart of Cal Tech disagreed by a 5-2 vote—reversing the earlier recommendations of the Army and Navy, and tacitly the Air Force—to select the virgin Vanguard for the prestigious U.S. satellite role. Untried, undeveloped, uncertain and unprecedented, the Vanguard did hold promise to some portions of the scientific community as an advance in the state of the art in fuels, guidance mechanics and goals. But later technical analysis by a Congressional investigating group gave it only a 15 percent chance of success. The final tally of eleven flights was two successes and one partially so, only one of the three within the span of the IGY.

In a nutshell, Vanguard was a "sophisticated" system but old hands in the fledgling business of building and launching rockets held out little hope for its success, a prediction borne out as the program was wrenched off the drawing boards, rushed sloppily out of the missile maker's factories and placed on the launching pad, ill-fitted for such a demanding task.

The Army was bludgeoned down, brutally and without substantive reason, Gavin declared. Dr. Stewart voted for the Army yet could not sway his committee (Dr. Robert W. Buchheim—RAND, G. H. Clement—RAND, Dr. Joseph Kaplan—University of California, Dr. Charles C. Lauritsen—Cal Tech, Dr. Robert R. McMath—University of Michigan, Dr. Richard W. Porter—General Electric, Dr. J. Barkley Rosser—Cornell University) to adopt the less costly, less involved—technically—program. Insiders to the 1955 selection indicate that interservice rivalry was not then an influencing factor but later Army-Navy-Air Force relations became so strained that bitterness still exists to-



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day between Redstone-Vanguard stalwarts.

A cabal apparently did exist between Civil Service employed at the Naval Research Laboratory and the National Academy of Sciences to make Vanguard a "peaceful" Civil Service missile instead of one militarily inspired. If this is true, then it proved Vanguard's—and the nation's—undoing.

True, the Army's arsenal concept under the Ballistic Missile Agency (ABMA) with its Civil Service complement under von Braun was comparable to the makeup of the Naval Research Lab, but there was a paucity of missile know-how there under the direction of Vanguard boss Dr. John P. Hagen. In fact, Gavin pointed out, the Army faced further ignominies, having been told many times to tackle and solve Vanguard technical problems, paying for it out of ABMA funds.

Secretary Wilson—even after Sputnik—ordered the Army to "suggest ways and means to help launch the 21-pound Vanguard spherical satellite . . . to include technical and component assistance" while it was readying its own then-approved satellite booster. Gavin and ABMA commander, Major General John B. Medaris, found themselves battling on a multi-front war even with victory in sight.

The Army's fight for survival in the satellite—and the missile—business was a knockdown, bitter brawl which only rarely broke through the military shroud of secrecy. This was no untarnished shield to those on the inside, Gavin told me this winter in his Massachusetts headquarters of Arthur D. Little, Inc., of which he is board chairman and chief executive.

Here, Gavin declared, the Army had the country's best and most experienced rocket team matched only by Russia which built up its own expertise after the U.S. snatched the key German scientists from Peenemünde after World War II. With the United States achieving a breakthrough in building a lightweight version of the thermonuclear bomb, one capable of being flown intercontinental distances in the warhead of a rocket, this military and industrial talent became available for direct and total involvement in closing the missile gap, a role which went to the Air Force.

Up to then the junior service was pushing its air-breathing missiles—the Matador, Snark and Navaho which are hardly comparable to today's instant war rockets, the Polaris and Minuteman. Some $700 million had been spent on the Navaho, which earned the title "Nevergo", until Defense Secretary Neil H. McElroy (Wilson's successor) canceled it—after Sputnik.

Gavin asked, "The big question is why in the name of heaven was money being spent on such a scale (Navaho) and in such a wasteful manner while we were denying our-



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selves a satellite? Was it being caused by industrial pressure? Service interests? Or simply poor decision-making in the Department of Defense? Of one thing we may be sure, our failure to launch a satellite was not due to lack of money in the Department of Defense budget!" Explorer I cost less than $10 million, he added.

The Army's argument supporting Redstone aimed dead center on "its greater flexibility as a launcher for a satellite . . . in a program having so short a time scale as the IGY period, since it makes it possible to compensate for unforeseen development difficulties."

This is exactly what happened in the final fiscal accounting—and schedule, too. Conceived by the White House as a "limited project" of some $20-$30 million, the final bill for Vanguard topped $125 million, a not unusual occurrence in the Missile Age.

During those summer of 1955 deliberations, the Army pleaded again and again for reconsideration of its Redstone, saying it could launch a satellite-carrying Jupiter C in January 1957, even earlier. "United States prestige dictates that every effort should be made to launch the first U.S. satellite at that time," it urged the stubborn Wilson forces.

The Jupiter C consisted of a Redstone first-stage with three upper stages all made up of scaled down Sergeant rockets weighing 50 pounds each. Firing in ripple-fire fashion, there were eleven Sergeants in the second-stage, three in the third and a single rocket fourth-stage with the payload attached to the empty casing.

The Army was aware—as the Air Force in this dawning electronic and space age—that development of a weapons system, particularly a rocket with over one million parts, carried a five- to eight-year development timetable. Recognizing this constraint, as Vanguard inched along from the manufacturing stage to the flight test arena at Cape Canaveral, detractors of the Navy's effort—not Army but Air Force—pointed out to the Pentagon's Holaday in an unpublished briefing:

> The lack of organization in Vanguard, definition of responsibilities, lack of mission plans and an overall master development plan.
>
> Particular charges against the stubborn, taciturn director, Dr. Hagen, with an inability to grasp the project reins and having an almost "fanatical" fear against delegating authority; not seeking outside technical assistance and leadership and refusing to discuss with his associates a "course of action to take in the event of a major catastrophe," which happened.

In fact, an Air Force officer on Vanguard told Holaday privately, "Vanguard could only succeed through luck. There were insufficient vehicles allotted for test and there



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was no probability of success." One would agree the Vanguard team faced a stacked deck from its inception, which is what the Army was trying to tell the White House.

Further, this officer criticized the Naval Research Lab and Hagen for "having no test program. Management," he declared, "must wait on a failure and then prepare a solution."

With criticism like this being heaped on Vanguard, no wonder Gavin, Medaris and von Braun bridled on the sidelines of what they felt, particularly, their specific destiny: Getting the United States into space. The choice of Vanguard, to them, was analogous to the Green Bay Packers starting rookie fullback Jim Grabowski in the Super Bowl while super star Jim Taylor sat on the bench because Coach Vince Lombardi wanted to see how his novice performed in a championship game.

In April 1956, General Medaris, as von Braun's military boss, again raised his protest, offering the Redstone for a January 1957 launch to orbit a satellite. This would be Jupiter C No.29 which was being readied for a nose cone re-entry test. He said, despite Pentagon claims to the contrary, it would not impact either the Jupiter IRBM or Redstone programs.

Secretary of the Army Wilber M. Brucker reaffirmed his endorsement in a letter to Wilson but was ignobly shot down. General Gavin stated. In fact, Holaday issued his now infamous and strangling order to the Army.

Inside a grass-covered bunker at the cape, a bunker not unlike thousands of others at scores of military installations used to store explosives, were three upper rocket stages designed to sit atop a Jupiter C.

Drs. von Braun and Debus, however, had other plans for this set of rockets besides a nose-cone flight. They planned to load the single rocket fourth-stage with fuel instead of Florida sand and, during the missile's final burst of thrust, push the satellite into orbit. No one would be the wiser, they felt. It could always be explained as a lofting shot that went awry.

This was more than a secret. It was a direct violation of the White House order to General Gavin. Once the orbit had been achieved—and scientists gave it a better than 90 percent chance of doing so—there was little doubt that Eisenhower would forgive and forget in the aura of the amazing "scientific" success. But how to get the shot off before the higher-ups were alerted to the real mission for No. 29 was the big problem.

Major General Donald N. Yates, commander of the Air Force Missile Test Center which controlled all launches, was briefed by von Braun on the possibility of No. 29 traveling into a higher than normal arc. Yates agreed to warn the range safety officer, whose job it was to destroy an



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errant rocket, that if it veered off its normal, elevated trajectory to let it fly.

The scene was set for a coup. Jet Propulsion Laboratory (JPL) was preparing the final loaded fourth-stage rocket. It produced the solid fuel stages in California and had implanted a small radio beacon for in-orbit transmission. It was ready for shipment east to the cape.

History is hazy, even today after the turmoil, on what transpired within the military oligarchy, but Dr. Hagen apparently learned of the bootleg attempt to wrest the satellite laurels, not away from the United States or for the Army, but from his beloved Vanguard.

Former Army Captain Raymond L. Clark, now a high NASA official on the Saturn 5 launch team, remembers vividly receiving a teletype in the summer of 1956 saying: "Get rid of all upper stages for missile No. 29." Terse to the point of abruptness, Clark removed them from the bunker. They were flown off the cape within the hour. Clark doesn't recall their destination but when, a few hours later, an Inspector General's team descended on the cape for a first-hand count of missiles and upper stages, he knew the game was up.

Reminiscing, Clark said after that incident an associate, Ballard Small, said, "I'm going to load that fourth-stage." "I wish you hadn't told me," Clark replied, "because now I have to order you not to." And so ended another tragicomic episode of the Army's attempt to get the U.S. in space—first.

One evening at the Patrick Air Force Base Officers Club more than a decade ago, Clark said, "Dr. Debus tossed up for grabs a proposal to use a Redstone with 50 Loki rockets on top to propel a payload 8,600 miles up. I looked at him in shock, not knowing whether he was funning or not." Everyone was thinking space in those days.

Colonel Dan Thompson (USAF-ret), also sitting in on one of those pioneer conversations at the day's end with Debus and Clark, recalls the veteran German launch specialist saying, "I could place a beer can on the moon if they gave me the chance." The time was not far off when the nation would try, but ten years ago the natives (missilemen) were restless. To them, the year of the moon was then when they first realized they had the capability of reaching it. As 1966 was the "year of the moon" with soft-landing spacecraft and lunar orbiting picture-takers, so, too, there will be another "year" this decade when man first steps onto that planet a quarter of a million miles away.

Fiery and often controversial, General Medaris took command of ABMA in September 1955 unaware —officially—of the Vanguard-Jupiter C wrangle. His first concern was the development of the Jupiter as a sea-launched ballistic missile of in-



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termediate range (IRBM) for the Navy and, secondly, as a backup to the Air Force's Thor. He beat the Thor to the firing line and almost got Jupiter as first choice as the U.S. IRBM. The Thor subsequently has enjoyed a splendid history as the nation's foremost space booster for unmanned, scientific satellites.

Medaris, who had weathered the Nickerson court-martial in the Thor controversy, took heated exception to a Pentagon document which quoted Medaris's concern that satellites would result in a lesser Army effort—and delay—in the Jupiter weapons system. "I never said it would impact the schedule by three months," General Medaris told me this year. "I also told Congress the Jupiter C had no effect on the Redstone or Jupiter weapons systems."

The Army, in building the Jupiter IRBM, also had to develop a nose cone to withstand temperatures of thousands of degrees to protect its nuclear warhead, just as the Air Force had to do for its Thor, Atlas, Titan and Minuteman. The consensus of Air Force thinking—and industry research—was limited to the heat sink approach. By sheer density, a mass of steel, a cone weighing thousands of pounds was the early Air Force choice. It poured nearly $200 millions into the heat sink cone before shifting in 1959 to the ablative or meltaway method involving the use of lightweight plastics such as on the re-entry shields protecting Gemini and Apollo astronauts.

Von Braun's team had been experimenting in-house with plastics. One lab test at the Huntsville, Alabama, arsenal involved a jet engine blazing against the test cones. Medaris said the experimental heats approached those predicted for ballistic missiles and advised the Pentagon he would require six Jupiter C rockets costing $18 million for flight tests.

On September 20, 1956, the first Jupiter C (No.27) flew successfully, soaring 787 miles high and 3,300 miles downrange proving that it could penetrate space at orbital injection velocities. A test with missile No. 34 on May 15, 1957, was not successful. The cone did not separate.

But on August 8, 1957, No. 40 soared over 600 miles high and the cone splashed down and was recovered 1,300 miles from the launching pad. President Eisenhower displayed it on nationwide television November 7th. Inside the cone was a letter from Dr. Debus to the President. The letter and cone were presented to the Smithsonian Institution.

Immediately, Medaris told von Braun, "Skip the rest of the shots. We're committed to the ablative method." For a total cost of $21 million, including three booster rockets, the Army proved its ablative theory at slightly more than one-tenth the Air Force price tag for the discarded heat sink cone. Also, it reliably proved the value of the



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Jupiter C as a space booster and left the Army with three of these rockets in inventory—waiting on a satellite mission.

Oddly, the Army seriously considered using Jupiter C No.27—the first flight version—for the unauthorized satellite mission since recovery of the cone was not a mission objective. They sadly lament the fact to this day.

The Army's arsenal concept was again the victor which nettled the Air Force who believed weapons systems development in the Space Age was better off in the hands of industry. Or was this the philosophy of the Eisenhower-Wilson team?

"Parochial, interservice jealousies," Medaris said, "kept me occupied primarily on Jupiter. We (the Army) were fighting on all fronts to keep the Navy (our customer) happy and the Air Force off our backs. If we had bucked Wilson (on satellites), he would have cut off our funding and what would have happened to the von Braun team?"

By July 1957, time for orbiting a satellite was growing short. U.S. intelligence estimates, Gavin reflected, indicated Soviet missile firings established clearly their achievement of a missile launching in excess of 1,000 miles. General Gavin deduced that "they were on the threshold of outer space and ready for the final stages of a satellite launching."

Medaris made a presentation to the Defense Security Advisory Committee at the cape and "tried desperately to make our point (for a satellite try separate from Vanguard) and that if we didn't get a backup program, we couldn't bail out the President." Again, prestige not space achievement was the goal.

In September of the Sputnik year, Gavin warned Army Secretary Brucker that "a Soviet satellite would be launched within thirty days." Brucker agreed with this appraisal and bucked forward to Wilson a stern memo "requesting authority to proceed on an Army satellite program, based on the Jupiter C." The Army's clarion calls "requesting authority" which began two and a half years ago, again received hushed Pentagon consideration. The rationale now was "because of the discussions taking place in the Holaday committee on the Jupiter-Thor issue, it was considered inadvisable to submit action at this time." The date was September 16, 1957, just eighteen days away from Sputnik.

"Incoming Secretary McElroy," Medaris asserted, "was a strong supporter of the Army satellite program but still had to overcome the Eisenhower reluctance." It was no secret Wilson, in quitting, was leaving a bagful of problems for the new secretary and the Army satellite was one of the lesser ones.

McElroy was at Huntsville on October 4th on an inspection tour prior to his swearing-in. Gavin said, "We arrived for a visit with Dr. von



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Braun and his missile team. Dr. von Braun was working on the IRBM with a range of 1,500 miles. I had looked forward to the visit for it was to give me an opportunity to talk to Dr. von Braun and his colleague, Dr. Martin Schilling, about the characteristics of the Soviet satellite we were anticipating, and also to discuss what we might do about it.

"Over a year earlier, Dr. von Braun had launched a Jupiter nose cone over 700 miles into space. We believed then that we had the capability of orbiting a satellite. On the basis of this, I made several entreaties to the Pentagon seeking authority to launch a satellite and shortly thereafter I was given a written order forbidding me to do so. This admonition was passed on to von Braun.

"We escorted our new Secretary of Defense through the laboratories and ended up in the Officers Club. It was while we were there that the first news came to us that the Soviets had just launched a satellite. We returned the next day to Washington." Gavin said. But the teatime and dinner table conversation in Huntsville that night reflected on the effect of the Soviet spectacular.

The end to ridicule and skepticism was soon to spread around the world and across the nation. Americans began asking themselves—and their Congressmen— "what happened to the United States?" The American public had already succumbed to the "missile gap." What else, they were asking, do the Russians have up their sleeve? What other technical, scientific areas were we behind in?

The headlines of October 5th in the nation's capital reflected the hysteria of the hour. Readers of the *Washington Post* were greeted with morning headlines: "SATELLITE FLASHES PAST D.C. SIX TIMES —RUSSIANS MAY HAVE ULTIMATE WEAPON." And the following day: "SPUTNIK COULD BE SPY IN THE SKY." And two days later: "REDS FIRE NEW TYPE H-BOMB," "CONFIRMED AS AN A-BLAST AT VERY HIGH ALTITUDE."

Senator Stuart Symington called for an inquiry by the Senate Armed Forces Committee and Senate Democratic Whip Mike Mansfield said, "I think that we had better wake up to reality, quit sacrificing security in the name of economy."

A White House staff member commented "he was personally gratified that our nation was not first" but General Gavin said "our nation was not gratified, in fact there was deep and widespread anger and resentment . . . that our scientists had not done better. And many questions were being asked of those in responsible positions in Washington about why it happened and why we allowed it to happen. In the Pentagon, itself, charges and countercharges rattled around the E-Ring, and in the morning after Sput-



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nik appeared in the heavens the Chief of Staff of the Army had a meeting to decide what advice he should pass on to the White House. The Pentagon was chagrined and deeply concerned."

Back in Huntsville that fateful evening, Lieutenant Henry McGill, Medaris's aide, whispered into the general's ear that "Von Braun was wanted on the phone. The *London Times* was inquiring about how the United States felt, now that the Russians had orbited Sputnik." It hurt like hell, said Medaris and Gavin. An era had ended.

Murray Snyder, assistant secretary of Defense for information, reacted swiftly and as his position dictated. "Tell everyone to keep their mouths shut," was Snyder's order, recalled Gordon Harris, then the Army Information officer for Medaris and von Braun and now in a similar post at the moonport. He said further:

"Von Braun said to McElroy, 'When you get back to Washington, you'll find out all hell has broken loose. Give us the go-ahead and we'll launch in sixty days.' Medaris interrupted, 'Make it ninety days, Wernher.' 'O.K. Make it ninety days,' von Braun said."

Medaris said the crew began the next day dusting off Jupiter C No.29 which had been mothballed for over a year after its removal from the cape. JPL got unofficial word to start pouring a live fourth-stage rocket and a decision had already been agreed on to use a Van Allen (Dr. James Van Allen) radiation experiment instead of a simple radio beacon. This test, Gavin said, was to be a scientific experiment, not just the placing of a "silly bauble" in orbit.

There still remained a bureaucratic battle, Medaris said. Thirty days had elapsed and still no "order to proceed" even though the Army was scheduling range time with the vigorous consent of General Yates, who also had received no order to do so. "Yates blocked off four days in January," Medaris said. "Vanguard was booked for early December but even he (Yates) knew Vanguard would fail."

The Pentagon masterminds still hedged on the Army proposal, preferring to agree only to use of the Jupiter C as a launch vehicle but adapting it to carry the Vanguard spheres into orbit with a first launch in March 1958. This would allow Vanguard engineers to fire at least two of their rockets before the Army could step in. Secretary Brucker agreed to this—anything being better than nothing.

Gavin went one better; he suggested an eighteen rocket, overall military satellite program costing $317 million from non-Army sources. Brucker signed off on this proposal also. While this indecision continued, the Russians November 3rd —within a day to the month of their first stunning success—orbited Sput-



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nik II, a monster weighing 1,120 pounds carrying a dog, Laika. Two days later, working on a revised schedule, the Armed Forces Policy Council recommended a two-satellite Jupiter C program "in support of Project Vanguard."

On November 8th, Gavin reminded Holaday of his May 1956 directive prohibiting the Army from using any part of the Redstone and Jupiter programs for scientific satellites. "Was it right," Gavin inquired, "for the Army to assume that order still remained in effect?" Apparently relishing this role, Gavin said further, "It seems imperative that a decision be made that would authorize the Army to launch a satellite in support of Vanguard—if that is what the Army is expected to do."

That same day, a Pentagon news release stated "the Army has been directed . . . to proceed with preparations for launching a scientific satellite by use of a modified Jupiter C test vehicle." Yet still, plunging further into military doubletalk, it said this program "will supplement the Vanguard which there is every reason to expect will meet the announced schedule to launch a small test satellite later this year and a fully instrumented scientific satellite in March." The old guard dies hard, Gavin said.

In its generosity, the Pentagon allowed $3.5 million for the purpose, exclusive of the Jupiter C which was in a Huntsville warehouse.

But there was a "hooker," Medaris pointed out. "It was intended we (the Army) should go only after Vanguard." The Pentagon advised Gavin the Army could have S-Urgency priority similar to that issued Vanguard, Atlas, Jupiter, Thor, Polaris and Titan. All the Army had to do was request it. General Medaris declined, saying, "I requested immediate action for a program directive and the $3.5 million to support it."

Gavin pressed the Pentagon to confirm the January 30th and March 6th launch dates, the latter as a backup. Holaday, now special assistant for guided missiles in the Pentagon hierarchy, advised "he could not authorize the Army to fire a Jupiter C until Vanguard had been allowed to attempt to launch a satellite."

Twelve days after getting the "missile 29 go-ahead," Holaday's group approved the January-March launch schedule, one which Medaris and Yates had already ticketed. Two days later, November 22nd, Holaday stated, "the cosmic-ray experiment prepared by Dr. Van Allen, University of Iowa, would be carried in the Jupiter C satellites." Again, Holaday hedged, advising Yates that Vanguard should be scheduled first; Jupiter C second. JPL was already matching the Van Allen experiment to the fourth stage.

Unlike the sophisticated, self-propelled, cosmic-guided spacecraft of today, the Jupiter C—and Vanguard



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—depended on crude, mechanical steering to orbit the final stage payload. It required delicate and propitious ignition of this stage yet it was a brute strength approach. The United States was then limited to only those exploratory experiments in which precision was not mandatory.

With the JPL-produced upper stages en route to the cape, the Army December 20, 1957, loaded No.29 through the bulbous nose doors of the C-124 Globemaster transport, landing two hours later at the 10,000 foot airstrip within the perimeter of Cape Canaveral. There was great secrecy in this maneuver. Here, Dr. Debus's firing team took charge, veterans of scores of launches and he of hundreds dating back to Peenemünde. None till now would ever be so important.

Two weeks earlier Vanguard TV-3, the first vehicle of that program to have orbit capability even though it was the "first" flight test of the second stage, exploded in a fireball two seconds after liftoff because of a pump failure which would have been uncovered had there been proper checkout procedures. As it blossomed into an awesome, destructive sight—visible to the press and public outside the cape many miles away—the three and a half pound satellite bounced off the launch stand as nearby tracking stations picked up its mortal "beep, beep."

This catastrophe opened the floodgates of criticism in the world press. This avalanche prompted the Pentagon to remove the physical barriers to the cape for newsmen, if, in return, they would curtail their speculation on launch dates and unexplained causes.

The four-stage, 68 foot 6 inch high Jupiter C was erected in three weeks and checked out. The "ninety days" to launch promised by Medaris and von Braun had expired, but delays in the Van Allen package and in getting the go-ahead from the Pentagon were to blame.

On January 31, 1958, the press was bussed out to the cape to an uninhabitable site about 8,000 feet away from the Jupiter C which was bathed in an eerie glow of searchlights and fog wisping out of the rocket from venting liquid oxygen. Cameramen with 1,000-inch lenses could see the rocket more clearly and were—for a while—the reporters' eyes. An electric motor started spinning the upper stages, buckets containing the Sergeant rockets. Anxiety and tension built up among the hundreds of press as well as among the hundred or so missilemen in a small, antiquated blockhouse where Debus, von Braun and Medaris sweated out the final phases of the countdown.

Light, fluffy clouds drifted over the cape coast as the count reached "zero" at 10:48 p.m. The roar of the beefed up Redstone engines, developing 83,000 pounds of thrust, rolled across the palmetto scrub to the press site as the ungainly missile



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lifted off the pad. Cheers rang out from eyewitnesses as it flew higher and higher into the sky, disappearing but leaving to observers below only a pinpoint of light as a new star in the heavens. Debus's crew watched dials and slide rules in a single glance, calculating its chances, listening to the seconds tick off as the countdown narrator tallied each milestone. "Separation, second-stage ignition, then third-, and finally the fourth-stage rocket fired injecting the payload into orbit at 17,451 m.p.h." All as the Army promised it would.

Tracking stations around the world cracked their electronic ears to pick up signals from the space fledgling. In orbit, Explorer I discovered "the most outstanding and significant new finding of the IGY, the Van Allen radiation belts."

A few months earlier, an editorial in *Aviation Week* criticized the "arsenal concept" employed by the Army, labeling it an "intellectual desert." The day after the Jupiter C-Explorer I success, Information Officer Harris wired the magazine's editor, Robert Hotz, "Roses are blooming in the desert."

Looking back, Gavin commented that "it serves science ill to treat space research in the manner of a football game." While he said this in December 1966, his thoughts must have traveled back to 1955 and forward again, reliving each day, year upon year, the White House dictums which denied to the nation a satellite of its own, an orbiting space vehicle which would have been the first in the world.

He recalled one scientist who said "space travel is a triumph of intellect, but a tragic failure of reason." Gavin agreed that this statement reflected man's "own insensitivity to social and political needs of a people" but was adamant in his belief that "the American people demanded that their representatives in Washington undertake an adequate space program."

Candidly, the vitally exuberant retired general said of Project Apollo, "That, in the public mind, it took the form of a race to the moon was unfortunate, but the moon was there and as a parameter of achievement in space technology, it will continue to be what people will judge progressive space research by."

The importance of space research on foreign policy was explained by Gavin. "The maintenance of an independent nuclear capability seemed to be an essential plank of the Conservative Party of Mr. MacMillan. The cancellation of Skybolt—by President Kennedy—denied it that capability . . . To the members of the Common Market, this clearly meant that, although Great Britain aspired to membership, she wanted to have special ties with the United States as well, and this in the minds of some disqualified her as a candidate."

Gavin said "This is but one example of a serious problem that now



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confronts our government, especially our State Department. Space research will affect, in some manner, all foreign policy and practically everything we do abroad."

Writing six years earlier, von Braun said, "Sometimes we have some real soul-searching to do. Take the question of rocket research versus medical research. Just a few months ago my mother died of cancer, so when I ask myself whether, say a few hundred million dollars of taxpayers' money would be better spent on cancer research, or on an attempt to take a few pictures of the far side of the moon, I hesitate to give an answer.

"But am I asking myself the right question? Surely there is another aspect to the problem. Suppose everything America stands for in the eyes of the world could best be expressed in terms of a stock market rating of so many hundred billion dollars. Suppose further that the fact that the Soviets succeeded in photographing the moon's unseen side reduced that rating by a fraction of 1 percent—say $1 billion. When I now assure you that for one-tenth of that amount America could have done the same thing ahead of the Russians' Lunik III, don't you think we can argue it would have been a worthwhile investment?

"Whether we like it or not, we are engaged in a worldwide popularity contest with the Soviets. We are competing for allies among the many have-not nations for whose underfed multitudes the Communist formula of life has great appeal . . . A feat like that performed by Lunik III is tantamount to a lost battle in that silent, cold struggle for the hearts of the 'uncommitted'."

Von Braun's pitch of 1960 certainly must have influenced President Kennedy in his decision of 1961 to commit the United States to Apollo, the adventure aimed at placing an American expeditionary force on the lunar surface before the end of the decade. That the end is in sight in no way diminishes the lack of a struggle this year in Congress for funds to carry out a national commitment within the timetable established.

Whereas the Army over a decade ago could not get scientific approval for a satellite program, today's decision concerns itself with competing dollars for a score of programs which some Congressional leaders favor instead of space bucks. Ironically, while the term "stretch-out" is heard ever increasingly, it is a weakening of purpose—worse than apathy. For if the Apollo goals are, indeed, stretched out, key project officials, even astronauts, will begin to look elsewhere for the challenge of the Space Age. "If the team breaks up before achieving these announced goals, the industrial, scientific and government community will think twice before again tackling a job of this order of magnitude, feeling they may be short-stopped again short of culmination."



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# Security Measure

*Once in a while—*
*though rarely—the best way*
*to aid your side in a*
*deadly battle is to*
*betray them to the enemy . . .*

**JOSEPH P. MARTINO**
*Illustrated by Kelly Freas*

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From: Director, Central Intelligence Agency
To: The President
1. The primary purpose of placing a security classification on information about weapons is to keep a potential enemy from learning about them and copying them.
2. The attached report from one of our agents . . .

Mikhail Antonov examined the documents in his wallet. The Internal Passport certified that he had been born in the city of Gorki, and had been given permission to move to Moscow three years ago. A union card certified that he was a member in good standing of the Electrical Engineers Union. A factory pass certified that he was employed as a designer of electronic equipment by the Dynamo Radio-Technical Works.

Several other documents lay visible in the open drawer of the desk before him. A birth certificate stated that he had been born in Gorki in 1939, to Anatole and Galina Antonov. Another certificate stated that he had graduated from a secondary school in Gorki, and a diploma attested to his graduation, with a degree in electrical engineering, from the N. I. Lobachevsky State University of Gorki.

They lied, all of them. Not in all details, of course. His name at birth had been Michael Antonov, and the names of his White Russian parents were given correctly. However, his birthplace had been the Bronx, New York, in 1936. The choice of a date to put on his faked birth certificate had been deliberate. Russian children, who had experienced the deprivations of the war years, tended to look a bit older than their American contemporaries. He was an electrical engineer, although the degree had been granted by the Polytechnic Institute of Brooklyn. He was, in fact, a member of the union, and did design industrial electronic equipment for the Dynamo Works.

All the rest of the details, however, were a triumph of the CIA, the culmination of nearly two years of hard work. The CIA had succeeded in creating a synthetic personality, with unimpeachable documentation to support it, and planted one of its agents in Moscow with that personality. If anyone requested of the N. I. Lobachevsky State University a transcript of the grades of one Mikhail Antonov, of the class of 1960, the clerk in the Administration Office of the University would find the record in the files, with all the appropriate annotations and signatures. If anyone inquired of the Bureau of Public Records of the city of Gorki, they would find that the data on the birth certificate was corroborated in the Bureau's files.

Of course, there were limitations to the strain which could be placed on this synthetic personality. So long as inquiries were restricted to



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writing to institutions for copies of records in their files, there would be no trouble. A more inquisitive investigator, however, would, of course, find that none of the professors whose signatures appeared on his records would remember him as a student. Nor would any of his supposed classmates remember him. Nor would anyone who had lived in any of the apartments his family was recorded as living in, remember either him or his parents. Nor would anyone in the hospital, where his parents had allegedly died, remember them. And, of course, there were no bodies under the gravestones which marked his parents' alleged resting place.

So it was important to him that he do nothing which would attract the attention of an inquisitive and thorough investigator. He had to be thoroughly law-abiding, and take extra precautions to avoid an accident which might cause him to be investigated. Furthermore, he had to avoid any work connected with weapons development or design, which might require a background check or loyalty investigation. But, of course, that wasn't his mission.

His superiors in the CIA had assigned him the task of penetrating the anti-Soviet underground. It had been felt that there was enough disaffection among the citizens of the Soviet Union that there must be some sort of organized underground movement, if not several. His job then was to locate it, join it in the guise of a Soviet citizen, and learn its goals, strengths, weaknesses, and membership. He did not fully understand the purposes of this activity, since he had been given to understand that under no circumstances should he reveal his proper identity. It had simply been stated that should one of the anti-Soviet groups come to power during the ten years he was to stay in the Soviet Union, the United States would have someone on the inside to assess the true intent of the new government. In the meantime the information he sent back was used as the basis for diplomatic maneuvering which would make the lot of the Soviet Government more difficult, and the lot of the dissident elements in the Soviet Union easier.

It had taken him over two years to be contacted by the underground. Even after the initial contact, he had spent six months in what was evidently a probationary period. But he had finally been fully accepted. He had been attending cell meetings regularly for two months, and tonight he was to attend his first meeting with some of the leaders of the organization which called itself simply the Revolutionary Group. He had been given to understand that the Revolutionary Group planned some major action soon, and that he was to be given a significant role in it.

He slammed the desk drawer shut, locked it, and stepped to the



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door of his single room. Before he stepped out, he looked around the narrow confines of the room which had been home to him since his arrival in Moscow three years before. It was slightly smaller than the nine square meters which was the legal allocation of floor space for one person, but it was roomier than the five square meters per person which turned out to be the actual practice in Moscow.

After a brief wait at the corner outside his apartment, Antonov boarded a trolley car. He picked the first empty seat, and sat down beside a young man wearing workman's garb.

"Be of good health, Comrade."

"Good health to you, Comrade," the younger man replied. "Have you a match?" he went on, as he pulled out a pack of cigarettes.

Antonov produced a small box of matches, and the young man offered him the pack of cigarettes. They both lit up.

"*Spasibo*," the young man said, as he returned the matches.

"*Nichevo*," replied Antonov.

Both then lapsed into silence. Antonov's thoughts took up from the young man's word of thanks. *Spasibo* literally meant *God save you*. Not even five decades of official atheism had been able to erase phrases like that from the Russian language. Truly, he reflected, words are the tools of thought. And the spirituality of the Russian people, their sense of the innate dignity of man, could be explained by the words they spoke. Even the most hardened atheist spoke and thought with words that implied and emphasized the spiritual. This was perhaps why the Russians' poets and novelists, those who dealt most directly with words, were the leaders in asserting man's right to be something more than a cog in the machinery of the State.

Unfortunately, it worked the other way, too. Pre-Revolutionary Russia had not developed an adequate vocabulary to discuss politics and economics. Hence the Russian spoke of these subjects, and thought about them, in the vocabulary of the Marxists. During one of the indoctrination sessions, while he was still on probation with the Revolutionary Group, he had raised a question about the role of the Communists.

"But the Communists overthrew the Czar and ended foreign intervention in our affairs. Are you trying to tell me they were in the wrong, and that's why we have to overthrow them?"

Natasha, his mentor, had replied, "No, not at all. The Communists were a necessary step along the way, just as Marx showed that the bourgeoisie were a necessary step from feudalism to capitalism. The objective function of the Communists was to industrialize the country. Now that they have accomplished their function, they must be replaced."



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The thought chilled him. There was something basically wrong with the idea that anyone, Communist, capitalist, or proletarian, could be viewed not as a human being, with his own intrinsic worth, but as an economic creature who was to be judged by whether or not he had fulfilled his "objective function."

But the whole Revolutionary Group was infected with the same Marxist virus. At a cell meeting only three weeks ago, he had listened to a vigorous discussion, exemplifying the finest of Marxist vocabulary and logic-chopping, in which the cell members had tried to convince themselves that they were not counterrevolutionaries, but were, in fact, furthering the work of the original revolution. The only language in which they could discuss their proposed revolution, and their post-revolutionary goals, was the language of those they wanted to overthrow.

Two young couples got on the trolley car, their gay but not boisterous laughter, at some joke of their own, ringing musically through the evening air. As the couples searched for seats, Antonov noted that almost all the passengers on the car were about the same age as the new passengers, perhaps in their early twenties. But then this was typical of the Soviet Union. Over half of its citizens had been born since World War II. It was a matter of great concern to the Soviet Government that this younger generation did not even remember the war, and the intensity of the struggle to repel the foreign invader, let alone remembering the Bolshevik upheaval of 1917. But to Antonov, it was cause for concern for another reason. This was the ultimate tragedy, that a whole generation had their thoughts stunted and distorted by a vocabulary which was inadequate to discuss the wrongness they sensed in the society about them.

As the car approached his stop, Antonov stood up. He got out at the entrance to Sokolniki Park, and ambled slowly through the gate. He was a few minutes early for his appointment, and did not want to attract attention by obviously appearing to be waiting for someone. He approached the corner of a flowerbed where he was to meet Natasha. Off to one side was a small area, surrounded by a knee-high blue fence which marked it off as a pigeon preserve. Inside the preserve, there were blue trough-shaped boxes bearing the legend "Take care of pigeons." Nearby stood several women in white coats selling crumbs and grain which could be put into the pigeon feeders. These women were probably just the peddlers they appeared to be, but they might also be secret police agents. He decided not to linger near them.

He moved to a nearby bench, which was surrounded by a cluster



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of people. On the bench stood a poet, reading one of his poems. As Antonov listened, he realized that the poem was actually a very daring attack on the government, but it was couched in allegorical terms which hid its meaning from all but the initiates. Antonov noted with appreciation that the poet's clothes were neat and well-cared-for and the poet's face was clean shaven. It just goes to prove, he thought, that it isn't necessary to wear dirty blue jeans, sandals, and a scraggly beard in order to launch an intellectual attack on an oppressive regime.

As he moved slowly through the crowd, he encountered a number of attractive women who gave him a friendly smile. He was reasonably handsome by most standards, and he had found that he had no difficulty in striking up an acquaintance with women he met in his visits to the many parks of Moscow. These encounters usually resulted in a date or two, sometimes to an Armenian or Georgian restaurant, or perhaps to a ballet at the Stanislavsky Theater. He had even, two or three times, taken a date to a soccer game at the Dynamo Stadiom. However, he had never got over the uneasiness that came from the knowledge that the Dynamo Sports Club was the sports club of the Secret Police, and he did not go there often. Thus when Natasha had befriended him one day here in Sokolniki Park, he had not been at all surprised.

The only unusual feature was the duration of their relationship. Since he felt he could not afford to become involved with anyone, he usually found some excuse to terminate his relationship with a girl after two or three dates. When he was about to go out with Natasha for the sixth time, he had polished up his customary story that he had only a one-room apartment, that he could not get a bigger one, and that furthermore he had little chance for advancement at his job, since his superiors were all only slightly older than he was. This usually sufficed to suggest to a girl that there was no future in a continued relationship with him, and allowed them to part on a friendly basis. However, he didn't get a chance to deliver this story to Natasha. Before he could start, she was recruiting him into the Revolutionary Group. She hinted that he had been recommended by someone who worked near him at the Dynamo, but he never learned who this person was. He or she must have been in some other cell. Nor did he ever inquire, since this might be taken amiss.

Right on the dot, he saw Natasha approaching the appointed meeting place. He strode to meet her at a carefully calculated pace, fast enough to suggest eagerness, but not so fast as to suggest haste. They exchanged warm smiles, he took her hand in his, and they strolled slowly through the crowd, heading by an



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indirect route for the park entrance, obviously with eyes and words only for each other. Viewing Natasha objectively, with no more personal involvement than he might have had for a statue in a museum, Antonov realized that she was quite attractive, even though her figure was more heroically proportioned than was true of most American girls. Thus it galled him that they had to feign, for the benefit of any watching secret police, a reaction which should have been entirely natural, but which they had had to suppress, lest it bring disaster both to them and to the Revolutionary Group.

They boarded a trolley car at the entrance to Sokolniki Park. They changed cars once out of necessity, and once out of conspiratorial reflex. Their cover story for the second change was that it took them through a much prettier section of Moscow. Finally Natasha led Antonov off the trolley car at a stop on a narrow street which was lined on both sides with recently-built concrete cubes of apartments.

They climbed to the second floor of one of the buildings, and Natasha pushed open one of the apartment doors. It led into a kitchen which was common to three apartments. A door on one side, standing slightly ajar, revealed the common bathroom. Two more doors led to one-room apartments. The remaining door led to what was apparently a two-room apartment, although the door to the second room was shut.

In the three rooms visible, however, there was a mildly boisterous party under way. The noise level was being held down, so as not to cause a disturbance and bring in the people's militia or the police, but this didn't seem to dampen the spirits of the merrymakers. Bottles of vodka stood open on tables and benches. About two dozen people seemed to be present, some clustered in tight knots, laughing quietly at their own jokes, some wandering from room to room, glass in hand. Antonov deduced, however, that at least one of the apparently mildly inebriated celebrants was cold sober, since he had enough respect for the Revolutionary Group to realize that they wouldn't leave the door unguarded.

Natasha pointed to one of the men in the two-room apartment. "That's Nikolai Shvernik. He lives in the large apartment, with his brother. This party is ostensibly to celebrate his promotion to Head of a Design Section at the Vladimir Ilyich Transformer Works. Most of these people are just friends of his. The neighbors from the other two rooms are also members of his cell, and have opened up their rooms for the party. The meeting is going on back there." And she pointed to the closed door leading to the second room. "Come with me."

She led him into the apartment, where somebody quickly shoved



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glasses into their hands. Antonov sipped, nearly gagged on the straight vodka, and recovered just in time to exchange pleasantries with someone to whom Natasha introduced him. He gathered the man was the occupant of one of the other two rooms. He, in turn, introduced them both to several other people standing nearby. Finally they made it across the room, opened the door, and slipped through.

As the door closed behind them, it shut out all traces of gaiety. Instead of the ubiquitous vodka bottles of the outer room, a samovar of tea stood on a small table to one side. Just inside the door they were met by a hard-faced man who stared at them intently, then silently stepped aside. There was no childish nonsense about passwords and such for the Revolutionary Group. Every member of a cell was, of course, known to the others. In each group of cells there was a man responsible for knowing by sight, but not by name, every member of each cell in the group. He, in turn, identified people by sight when they were scheduled to meet others outside their own cell.

Antonov looked the room over quickly. On one side, three men sat on the bed, heads bent over some papers. In the far corner, opposite the bed, half a dozen men sat in a circle of chairs, passing papers back and forth. Behind the door was a table with a large map of the Soviet Union spread out on it. Two men worked over the map, one with draftsman's compasses, the other with a slide rule.

Antonov noted that the draftsman was marking little red circles on the map, apparently according to instructions from the one with the slide rule. He looked closer, and saw that the circles all seemed to be in the vicinity of capitals of the various Soviet Republics. One just overlapped Pulkovo, southeast of Leningrad. Antonov vaguely recalled that there was a Red Army garrison there. Another was located between Vnukovo, another garrison town southwest of Moscow, and Moscow itself. Another one was centered northeast of Moscow, and overlapped Tushino, site of a major Red Air Force base and home of the annual Tushino Air Show.

Then his eye caught a book lying open on the table. He blinked, and looked again. He was right the first time. It was a copy of "The Effects of Nuclear Weapons," the 1962 edition. It showed signs of heavy use, but was obviously well cared for.

"Where did you get that?" he blurted out, pointing at the book.

The man with the slide rule looked up at him, startled, then went back to his work, wordlessly.

Natasha glanced at it negligently, then said: "I don't know exactly how Yuri got it, but I understand the Americans sell it to anyone who has the price." And she shrugged



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her shoulders, as if to say, "You know the Americans will do anything for money."

"Come now," she said. "You must meet Victor Leontiev."

Victor Leontiev, which Antonov concluded was probably not his real name, fitted the picture of a Russian revolutionary only to the extent of having a bushy black beard. Otherwise he presented a totally inoffensive appearance, as though he would be inconspicuous on an empty street, and would vanish completely in a crowd.

"Good evening, Comrade Mitsova. And good evening to you, Comrade Antonov. It is a pleasure to meet you. We have been looking forward to your arrival. Here, sit down." Leontiev gestured at his chair, and went to get another one from where it stood against the wall. Natasha withdrew from the group, and left the room to join the party.

"Now, Comrade Antonov," Leontiev continued, "as you have been told by your attractive companion, it is our goal to continue the work of the Bolshevik Revolution of 1917, by supplanting the Communists now that they have completed their work. However, like all ruling classes, they will not give up their power easily. It will be necessary to overthrow them."

"But how?" Antonov asked. "It appears that they control all the sources of power in the Soviet Union. An uprising in the streets, like that which brought them to power in 1917, would lead to slaughter. We need only look at the experience of Budapest to see how the Communists act in the face of rebellion."

"You are quite right, Comrade. The ways by which the Communists reached power will no longer work. However, the dialectical movement of history is irresistible. While the Communists have prevented the old ways from working, they have provided us with new ways."

He reached into a leather case on the floor, and brought up a sheaf of papers. "You are reported to be a good electronics engineer. We have need of such. Take these plans." Antonov took the proffered papers, and unrolled them. Each one seemed to be a wiring diagram of some kind. "These are the circuit diagrams of the rocket-launching base at Vyazma. Can you trace the firing circuits for the missiles?"

Antonov looked at the papers Leontiev handed him. If only he could laugh at the irony, he thought. There might well be dozens of CIA agents trying to get their hands on plans like these, without success. And he, who wasn't even supposed to concern himself with such things, got them handed to him. He wondered briefly whether he ought to make some effort to transmit them to the CIA, then decided to worry about it later. Right now he had another problem.



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At first the diagrams made no sense. This was to be expected, however. He was unfamiliar with them, and there were no obvious starting-places to proceed from. He chose a few nodes at random, and started tracing the circuits from them. Finally memories started coming back, memories of the time he had worked for Lockheed on the design of the Odin missile. Despite differences in language and customs, engineers working on the same problems, using about the same level of technology, tended to come to similar solutions. He found that in most cases the Russians had solved the problems they had been faced with in much the same way the Lockheed engineers had solved the same problems. However, from time to time he found himself nodding in approval at some of the tricks the Russians had used to solve particularly nasty problems, and alternately shaking his head in dismay at the way they had missed the right answer, and used a brute force approach to overcome some difficulty.

Finally, he was able to answer. "Yes, I can trace the firing circuits from the Launch Control Center, here in this blockhouse," he pointed at one of the drawings, "to each of the launch sites. This main cable comes out of the blockhouse, then splits at this point where separate cables run to each site."

"Good, good," Leontiev replied. "If you could tap into this cable here near the blockhouse, before it fans out, could you inject firing signals into the rockets?"

"Probably, but there would be no way to control them. I don't know the computer code used to set in targets or initiate the launch sequence."

Leontiev grunted once, bent down and hauled a large, loose-leaf volume out of his case. "Here. This is the maintenance manual for the Launch Control System. I am told that it has the information you need."

Antonov thumbed through the manual quickly, and saw that it did indeed describe the codes used to operate the missile. "What control information do you want put into the missiles?"

"You saw the map as you entered. We will provide you with a list of coordinates in the vicinity of the capitals of the various Soviet Republics which we wish the rockets to strike. There are fifteen rockets at that base. We will use all fifteen to destroy the garrisons at the capitals, as well as several military bases around Moscow. We will destroy all the major garrisons as far eastward as Sverdlovsk, which is as far toward the east as the rockets at Vyazma will go."

Antonov sat stunned, with half his mind fuming at himself for not having put the clues together already, the other half raging at the stupidity and insanity of people who



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would use nuclear weapons in a civil war. Finally, he decided that for his own safety he must act as though he believed this to be a rational course of action for rational men, and start appearing to take it seriously.

He marveled at the calmness of his own voice as he heard himself ask, "Wouldn't it be better to use a rocket base located farther east? That way we could also destroy the long-range rocket bases in Siberia, which might otherwise be used against us."

"There would," Leontiev replied, "be some advantage in using a rocket base farther east, so that we could strike more garrisons. However, we would not in any case strike the long-range rocket bases. If those were destroyed there would be nothing to stop the Americans from bombarding us. We must have those long-range rockets, both to keep the Americans from intervening in our revolution, perhaps in favor of the counter-revolutionary forces which still exist among us, and to use as a bargaining lever after we have taken over. Unfortunately, the only other bases we can conveniently reach are at Ryazan and Kalinin. And at both of those, the rockets are guided by radio beams. The antennas are located in such a way that the rockets can be guided toward the west only. The missiles at Vyazma are a newer design, and are guided inertially. They can be fired in any direction. Now what will be required to launch them ourselves?"

Antonov had become an engineer for a complex of reasons, but high on the list was the fact that he enjoyed the intellectual stimulation of providing a simple and economical solution to a problem. He found that even in a case where he desperately desired that there should be no solution, he couldn't help but jump at the challenge. The solution did turn out to be a simple one. The control unit would be a small package containing a stepping switch and a battery-operated motor which unreeled a perforated paper tape past a reading head. The only action required at the missile site would be to make the proper connections to the cable coming out of the blockhouse, and start the motor and stepping switch going.

But then he told himself that surely it couldn't be that simple. There had to be more difficulty about it than that. He started paging through the diagrams again. There must be some protection built into the system, he thought. It had been a standing joke among the engineers working on the Odin that with all the safeguards against accidental firing, or sabotage, which were demanded by the Air Force and the AEC, it would be a miracle if the Odin ever got off the pad even if the President did push the button. But here everything seemed straightforward. Where were the safeguards, the double-key systems,



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the multiple firing controls requiring simultaneous operation, the intrusion alarms? It appeared that once an enabling signal was received from somewhere outside the blockhouse, probably the Kremlin, then the Launch Control Officer could fire all the missiles by himself. And since the Revolutionary Group planned to tap into the cables downstream from the blockhouse, not even the enabling signal was required.

Finally he found what he was looking for. "Look," he said, "here is a chain of geophones around the launching site. It would be impossible to penetrate to where this cable is located, because even the faintest footfall would be detected. And surely there are guards. How could anyone possibly get to the cable for long enough to do what is necessary, without being caught by the guards?"

"The guards will be no problem, since we will use a tunnel to approach the cable."

"But tunneling will be detected by the geophones, just as would walking."

"But it was not detected. The tunnel is already dug. There is a Launch Control Officer who is one of us. We dug the tunnel on the nights he was on duty."

Another thought struck Antonov. "There's something else. When we tap into this cable, there are bound to be indications on the control console. Whoever is on watch will realize that something is going on."

"That is why we must do it on a night when our man is on watch. This will happen again in three nights. Can you have a control device ready by then?"

Antonov thought quickly. The biggest part of the work would be preparing the tape, and he could use the small computer in his department at the Dynamo Works for that. "Yes, I could have it ready by then. But will that be enough time for you to make all the arrangements you need? Even if you destroy the capitals of the various Republics, surely more than that is required to displace the Communists."

"First, please understand that we will not destroy the capitals. In each case we will wish the rockets to strike outside the city, but close enough to the local garrison to destroy it, and with no more damage to the city than necessary. The aiming points have all been calculated with extreme care.

"As for preparations, we have been ready for some time. As soon as the explosions take place, our agents in each of the capitals will go into the streets with loudspeaker trucks, proclaiming the overthrow of the Communists and explaining our goals. The popular uprising can then take place, since there will be no troops ready to suppress it. We will broadcast to the troops and the cities beyond the range of our rockets, inviting them to join in the overthrow of the Communists."



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At this point Nikolai Shvernik entered the room. "My friends from the Ilyich Works are beginning to leave," he said. "We had better bring the meeting to an end."

Leontiev turned to Antonov. "Which of those plans will you need to take with you?"

Antonov, however, had anticipated him. "I have what I need here, and I need just two chapters out of this maintenance manual."

"Good. Take them."

Natasha hurried into the room. "Come, Mikhail. We must leave together, or else someone might wonder if we had a fight."

He found a glass of vodka thrust into his hands. "Drink that. You mustn't leave here without any alcohol in your system."

He took a swallow. Tears came to his eyes as it burned its way down his gullet. Taking a grip on himself, he poured the rest of it down without stopping, coughed a couple of times, and washed it down with a cup of hot black tea.

Suddenly the room and everything in it seemed unreal and remote to him. Is it the vodka, he wondered, or a touch of sanity returning after taking these maniacs seriously? Somehow he made it out the door. He and Natasha leaned on each other all the way down the stairs. Stepping over-carefully, he made it to a lamp post beside the trolley stop. He hung onto the post with one hand, and kept the other around Natasha's waist. Actually, since she had spread her drinking out over the evening, she was in somewhat better shape than he was. She steadied him as they boarded the trolley car.

*"Ne kulturny,"* sniffed an old woman as they dropped unsteadily into one of the seats.

"Oh, shut up, *babushka,*" Antonov muttered under his breath. "I've got enough troubles without you picking on me."

The cool night air had a bracing effect on both Antonov and Natasha. By the time they reached her apartment, they were able to navigate fairly well. He helped her up the stairs and into her apartment. He exchanged some pleasantries with her roommate, politely refused a cup of tea, and bade Natasha as fond a farewell as seemed called for under the circumstances. All the way home, however, his head still spun. He couldn't tell whether it was the after effects of the vodka, or his reaction to the plans of the Revolutionary Group.

After he got to bed, he lay awake, unable to drop off to sleep. Even in spite of the Marxist claptrap which encumbered the thinking of the Revolutionary Group, he didn't see how they could take their own plans seriously. What would be the effect of having fifteen nuclear warheads burst near all the Republic capitals in the western half of the Soviet Union? Almost inevitably someone at a surviving rocket base would decide that the country



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had at last been attacked by the Americans, and Armageddon would be on.

Even if their discipline held, and they didn't fire without orders, the citizens of the capitals were unlikely to start an uprising. They were too well drilled in Civil Defense procedures to stand around in the streets listening to sound trucks during a nuclear attack. They would head for the shelters as rapidly as possible. And what about the troops outside the range of the rockets? Were they likely to take kindly to the slaughter of their comrades-in-arms, and join those who were guilty of the slaughter? And finally, what kind of society did they think would rise out of the ashes they were going to create? Since they were evidently not prepared to provide any real leadership to the popular uprising they hoped to unleash, the best they could expect to achieve would be a period of anarchy. It had taken a strong leader like Lenin to bring order out of the post-Czarist anarchy, and surely they didn't want to go through that again.

Well, he decided, somehow the Revolutionary Group would have to be stopped. Ideally, he thought, the best possible outcome would be for the Soviet Government to learn of them and round them up, leaving him back where he was a year ago, looking for an underground group to penetrate. That, however, was too good to be true. He couldn't hope for that much. So he started mentally listing the disasters which could happen, in decreasing order of magnitude.

First, the missiles might get launched. That was the worst. That had to be stopped at all costs. Second to that was that the Soviets might find out who he was. But then he modified that. Second was that the Soviets might find out who he was before he was able to escape from the country. Third was that they find out afterwards, and start hunting for the other synthetic personalities the CIA must have planted. Next worst would be that the Revolutionary Group should find out who he was. No, on second thought that should be grouped with the Soviets learning who he was, since the Revolutionary Group had no love for Americans, and would simply tip off secret police about him.

Having ordered the disastrous outcomes in his mind, he next started to consider what he had to do over the next three days. Since the Revolutionary Group had a member near him at the Dynamo, someone whose identity was unknown to him, he had to act as though he were going ahead with the plan. He would have to appear as though he were building the required control device. And since he had to count on their agent's being a skilled engineer, he would in fact have to build the device, since it would undoubtedly have to pass a rigorous



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inspection. But, he thought, with what he could get from the Dynamo, and what he had hidden under the floorboards in his room, it ought to work out just right. Finally, he was able to drift off to sleep, his plans for the morrow outlined in his mind.

Antonov entered the Byelorussian passenger station, at the southwest corner of Moscow, where one caught the train for Vyazma and such other points as Smolensk, Minsk, Warsaw and Berlin. He spotted Victor Leontiev and two others of the Revolutionary Group waiting on the platform. There were supposed to be two more besides, but they were from another cell and he knew he would not recognize them. Natasha was not to go along with him tonight. This was the first of the Revolutionary Group's activities he had taken part in without her company. Her absence gave him a feeling of loneliness, but he decided it was probably just as well she wasn't along.

The train they were to catch was a local, which would get them to Vyazma just before midnight. The original plan had been to take an express, which left the Byelorussian station three hours later, but got into Vyazma only one hour after the local. The reasoning had been that since they would be on the express train a shorter time, they were in less danger of being caught. Antonov had argued, successfully, that taking the local would get them started earlier at the rocket base. Also, if they planned to take the earlier train, they could always change their plans if need be and take the later one.

Antonov boarded the train, and took a seat in a coach. According to the plan, Shvernik boarded the same coach he did, and Leontiev boarded the one ahead. The two men he did not know were to board yet another coach. He placed his two suitcases in the overhead rack. One, a disreputable brown case, contained the launch control device and the tools he might need for connecting it up. The other case contained clothing, and was intended as part of his cover, which was that he was going to Smolensk to visit a factory which was bringing out a new line of machinery for automated textile factories, and for which the Dynamo Works was to make components.

The train soon started on its way. Antonov did his best to shut out the constant drone of Radio Moscow, which blared from speakers at either end of the coach. In a sleeper or compartment, there was usually a volume control on the speaker, but here in the coach it was at full volume. At the frequent stops he got out with the other passengers to stretch his legs, walk around a bit, and buy some sandwiches or fruit from the vendors on the platform. Finally, after a length of time which



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his watch told him was six hours, but which his body insisted was more nearly six days, the train reached Vyazma.

He got off the train, and as instructed, followed Victor Leontiev off the platform and out of the station. Leontiev, trailed by the five Revolutionary Group members, headed for the parking area reserved for government officials. He looked about, spotted a big Zil limousine, and walked up to it. Antonov saw him check the license number against a card which he pulled from his pocket. After another look around, he motioned to the others to hurry. They reached the car quickly. Antonov noted that the car bore a legend identifying it as belonging to the Ministry of Heavy Industry of the Republic of Moscow. Evidently the Revolutionary Group had at least one member among the drivers of the Ministry.

Quickly they stowed their suitcases in the trunk, except for Antonov's brown case, which he kept with him. They climbed aboard and Leontiev drove out of Vyazma toward the rocket base. After about ten minutes of driving, he pulled off the road and hid the car among some trees. One man stayed with the car, while the rest headed farther from the road, following Leontiev.

They soon reached a clump of bushes, where Leontiev pulled aside some brush and revealed the black hole of a shaft mouth. He pulled out a flashlight and made a quick inspection which assured him that no one had entered the tunnel since he last left it. He then climbed down the ladder. In a few seconds there came a hoarse whisper, "Next!" from the shaft. Another of the group disappeared below the ground. Antonov's turn came next. He put his feet on the top rung of the ladder and held onto the rim of the shaft with one hand, while he gripped the case with the other. He slowly dropped one foot after the other, fumbling for the rungs in the dark. He counted twelve rungs before his foot hit the floor of the tunnel.

"Crouch down," he heard Leontiev whisper. "On your hands and knees from there on."

He left the case at the foot of the shaft, and crawled toward Leontiev. He had the sudden sensation that there was something ahead of him, and stopped. He reached out and touched someone's arm.

It was Leontiev. "Let me back towards the entrance," he whispered.

Leontiev left him, and he crawled a bit farther, then sat down with his back against the tunnel wall. Shortly a flashlight went on, and he noticed that a curtain had been hung across the tunnel entrance at the foot of the shaft. At least they could have light now. Again Leontiev led the way, with Antonov close behind him, and the



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others following. As they crawled through the tunnel, Antonov found himself cringing away from the ceiling, as though to get farther from the geophones. We're bound to be discovered, he thought. If our man has been replaced by someone else tonight, we're trapped.

However, nothing had happened by the time they reached the end of the tunnel. Here, crossing from one side to the other, was an armored cable, about as thick as a man's thigh. Antonov turned over on his back and slid under the cable, examined it from all sides, and tapped it with a fingernail.

"Got to get my tools," he said, and crawled back to the tunnel entrance. He returned quickly with the control box and a small kit of tools. He pulled a hacksaw out of the kit, placed it against the cable, and hesitated momentarily. If this cable were part of the Odin missile system, he thought, it would be filled with dry nitrogen under pressure. At the first penetration of the cable, the pressure drop would start alarms ringing all over the place. It's too late to back out now, he told himself, and started sawing vigorously.

After a few seconds he paused, listened, and started sawing again. Finally he cut through the armor and withdrew the saw to look at the cut. However, there was no hissing sound as of gas escaping, so he went back to sawing. Shortly he had cut completely across one segment of the armor tape, and soon the rest were severed around the cable. He took a pair of pliers and started unwinding the metal tapes, revealing the wires inside. He exposed a foot or so of wire, then dropped the pliers. He unwound the cable from the control box, and checked that it would reach the missile control cable.

He looked at his watch. It had been forty minutes since they had stepped off the train at Vyazma. He made an adjustment on the control box, and set it back down. He muttered: "Got to get a special wire-cutter," and started crawling back toward the tunnel entrance. He reached his case and started fumbling through it. He pulled out a pad of gauze sealed in a plastic wrapper, and laid it on the ground. He opened a small bottle, removed a strip of wet, pinkish paper, and laid it on the ground beside the pad. Within a few seconds, the strip of paper suddenly turned orange. He held his breath, tore the plastic wrapper off the gauze, and held the chemical-soaked pad across his nose and mouth. Thirty seconds later he looked over his shoulder.

All the men behind him were slumped on the tunnel floor, unmoving. The odorless anaesthetic which the control box had released had flooded the tunnel and dropped them before they realized what had happened. He started crawling down the tunnel to where Leontiev lay. He pawed through Leontiev's



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pockets until he found the key to the car, and scrambled as rapidly as he could back to the tunnel entrance.

He hunted through his case again, and pulled out a tubular object about a foot long, with a stud projecting from the side near one end, and the other end open. After a bit more fumbling, he pulled out a squat cylinder about six inches high, with a ring projecting from the top. He tucked the objects under his arms and started up the ladder, counting the dozen rungs to himself. As he reached the top, he placed the squat cylinder on the ground beside the shaft opening, and pulled the ring out of it.

He then moved as quickly as he could back toward the car, trying to avoid blundering into something or making noise. He crept the last part of the way, ending just a few feet from the man guarding the car. He pointed the tube and pressed the stud. A dart whistled out the open end. The guard barely had time to jerk around toward Antonov before the drug in the dart dropped him.

Antonov climbed into the car, turned the motor over, slammed the car into gear, spun out onto the road, and headed back toward Vyazma. Behind him, a flare arched into the sky from the cylinder beside the tunnel opening. It ought, he felt, to alert every guard and policeman for miles. The flare had been a compromise between his sense of duty, and his soft heart. The Revolutionary Group had to be put out of action, before they found some other engineer and tried again. He found he couldn't bring himself to kill them, so the next best thing was to tip off the secret police. The Group members would end up just as dead, but at least not by his own hand. But now that the Revolutionary Group was taken care of, he had another set of problems.

He had just enough time to catch the express train from Moscow, if he didn't get lost or stopped. Once aboard the train, he felt, he had it made. The suitcase of clothing, a set of counterfeit passes he had made up according to the latest instructions from the CIA, and a cover story about a sick relative in East Berlin, ought to get him out of the country. Once in East Berlin, he felt sure, he could make the proper contacts and get across the Wall. With anything resembling good luck, he was practically home.

. . . obtained upon his arrival in West Berlin, indicates that the safeguards the Russians have placed on their missiles do not begin to approach ours in the level of protection they provide the missiles. 3. It is in our interest to see that the Russian missiles are not fired inadvertently or by unauthorized persons, so I recommend that you immediately declassify all the protective devices we use on our missiles, in the hope that the Russians will copy them. ■



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# Project Lion

*There are some games in which it is*
*impossible to defeat a player who does* not *know the rules.*
*And that is naturally very difficult*
*for someone who knows the rules to recognize and use . . .*

**LAWRENCE A. PERKINS**

*Illustrated by John Schoenherr*



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"Is it something you can't talk about?" The sequins, indicating elector rank, sparkled on Elaine's bodice as she took a quick, angry step forward.

Chancellor Norbert Parker-Horst, first overlord of Eurica, leaned wearily back and closed tired gray eyes. "Yes, it is—but you'll find out anyhow." His spare figure slumped, and somehow the peppering of gray in his dark hair seemed more pronounced. Then he leaned forward and peered about the cavernous living room to be sure that they were alone. "You know about Project Hermes, of course."

"Who doesn't?" She narrowed her hazel eyes thoughtfully. "Harvard Observatory's computer screened fifty years' observation of Procyon and reported that the . . . what was it? . . . perturbations of the star revealed that it has five planets."

"That is correct. The computer couldn't say how big they are, but it did give their mass in terms of the mass of Procyon. Assuming that Procyon is the size we think it is, planets three and four should be about the size of Tellus—the earth, that is."

"Of course. And just three weeks later, our first full-scale ion-drive spaceship was finished. So naturally Eurica sent out the ship to explore the planets. And I believe it was announced that, due to relativistic effects, the crew would age only a few years. But that was twenty-five years ago." She gasped. "You mean . . . ?"

"Our ship is on its way back. It has just slowed enough to be able to use microwave, and it should land in a couple of weeks. And the men found a habitable planet. They habited it for half a year."

"But that's marvelous! That's wonderful!" Her sequins glittered again as her lithe little figure rippled in excitement. "That means that . . ." Her voice faded away as she recognized her husband's expression.

"Dunbar—he's captain, you know—has been 'faxing reports ever since contact, so there'll be a written record even if there's trouble when he lands. I've flipped through most of it, and I spent most of a day listening to his voice report. Not much conversation yet, of course; he's still light-hours away."

Elaine's electric silence was a plea for more information. The chancellor reluctantly continued. "The crew spent weeks gathering basic information about Procyon IV. Breathable atmosphere, plenty of water, about one point two G's of gravity. It's mostly ocean, like Tellus—and like Tellus, has a satellite big enough to kick up tides—but there are continental masses as well as a number of archipelagoes."

"And?"

The chancellor fidgeted nervously. "And then they stumbled on an alien outpost—more or less the same sort of thing they were planning to set up themselves. Did set up, as a matter of fact—right next



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to the aliens—aiming the beam straight at Sol and leaving the finderscope in place to save them the trouble our men had tracing the alien beam."

Elaine dropped into a chair so suddenly that the intertwining spirals of her upsweep hairdo vibrated. "But then, they'll know where we are!"

"Fair trade, and I've nominated Dunbar to become an elector. The alien station must be broadcasting straight at its own home base. Our men tracked the beam within half a degree, and it was dead on a bright F7. Dunbar was on Procyon IV long enough to make parallax measurements, and the star was about eight light-years from Procyon and about fifteen from us."

"But surely . . ."

"Yes. Of course the night sky of Procyon is quite a bit different from ours, but our central computer can read his star charts and spectrograms to come up with an identification."

Elaine glanced anxiously at the darkened windows of the huge living room, giving the odd illusion that she had grown smaller. "And?"

"We'll be meeting them, of course, and soon. Soon." He followed his wife's glance. "But Dunbar did all the right things. Putting our station next to theirs, deliberately showing them exactly where we are, was the friendliest action possible. Their monitors must have picked him up. If he'd sneaked away, or tried to bollix their station, he'd have aroused either their anxiety or their anger."

She continued to stare at the black glass panes. "How soon?"

"Oh, very soon indeed. Dunbar noticed that the aliens' station seems to be using thermionic tubes. The sidereal array keeping their beam aimed at their home planet also uses a lot of power. They had to set up a little hydroelectric plant to run the thing. Our transistorized and miniaturized station, running on nickel-cadmium batteries, will probably rock them as much as their campsite rocked us."

"Meaning?"

"Meaning that some of the bits and pieces that Dunbar's men found suggest rather clearly that the aliens have an ultralight drive."

"Oh?"

"We've been working on ultralight for over fifty years. With a few operational samples to work on—and by 'operational' I mean working, even if the particular sample does happen to be broken or worn out—we ought to be able to break through in a month or so." He smiled fleetingly. "With any luck we can . . ."

"Ultralight drive—and they know exactly where we are!" Elaine's face distorted in alarm as she suddenly wrenched her eyes away from the inscrutable windows and trackless space beyond them. "They could show up any day." She looked at him beseechingly.



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"Dunbar gambled—and I agree with him—that a civilization bright enough to make it into space is bright enough to be peaceful. Peaceful or not, with ultralight drive they would search us out sooner or later anyhow. This way, it'll be sooner. But we've been receiving Dunbar's station for months, and there's no sign of any activity at the site, except for the wandering of indigenous animals."

"But that's microwave. It comes only at the speed of light. How far away is Procyon?"

"Eleven years. Hm-m-m, I see what you're thinking. Remember, it takes eight years for the alien space station's sighting of Dunbar to get wherever it's going. And it will take the aliens time to mount an expedition to us. They'd want to study our artifacts first—and Dunbar deliberately left a number of things which should require quite a bit of study."

Elaine was obviously much less than satisfied, and her expression suddenly reminded him that she was First Lady of the realm and in her own right represented the powerful electorate of Hudsonia.

But the chancellor was also an elector, and in a prescient flash understood almost exactly what she was thinking. "You're perfectly right, of course. We'd be at a considerable disadvantage if they were to show up here. But I still say that Dunbar was right. He did the only intelligent thing. His message was, 'We are friendly and have nothing to hide. We are also completely unafraid; come try us!' "

He allowed himself a covert glance at the obsidian windowpanes. "Man has been brooding for centuries about this very problem: how to handle contact with the aliens that we must inevitably meet in this vast universe. And now it's up to me to handle it." He suddenly became very busy filling and lighting a charred and blackened pipe that contrasted oddly with his elegant tunic and trousers.

"Problem?" Elaine absently checked her tricoil hairdo and in the peculiar manner of women regained composure in so doing. "Yes, I can see that it could be very bad if the aliens appear here. Back in the preglobal era we humans had trouble enough contacting each other. It was always the contacted party that got wiped out, I seem to remember."

The chancellor puffed his pipe alight. "Well, yes," he volunteered as the blue smoke began rising. "The Spanish did fairly wipe out the Middle American civilizations."

"And the Argives wiped out the Minoans, and the Egyptians wiped out the Hittites. More to the point, *Homo sapiens* wiped out the Neanderthals. Oh, don't look so surprised; you know that my field is ancient history and prehistory. But those were cases of fairly equal civilizations—even the Spanish and the Incas. Matter of fact, the Mousterian Neanderthals were several jumps ahead of the opposition."



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Elaine paused for breath and then began talking just a little bit faster. "When the intruding civilization was superior, the effect was even worse: the French and the Eskimo, the British and the Tasmanians, the Americans and the Solomon Island . . ."

"I know, I know, I know! I may lack a few grisly details, but *my* field is political science—as you might have remembered." He puffed angrily on his pipe and then continued in a milder tone, "The obvious answer is to try to meet them on Procyon IV. Then *each* of us does the meeting, and both of us avoid most of the cultural shock." More puffs. "But whom do we send? What sort of contact team should I put together?"

"Why, that should be easy. Except for enough technicians to operate the ship, gather as many poets, musicians, scientists, as the ship will hold, and . . ." Again she subsided at the glacial expression on her husband's face.

He jabbed at her with his pipe stem. "Musicians and poets. Fine. Very fine. Suppose the aliens don't have ears. What good are musicians? Or suppose the aliens don't have an audible spoken language after the human manner. What if they touch antennae or communicate by color patches? What good would poets do?"

He puffed viciously on his pipe and continued. "And scientists? Ej Votrusek, the solid state physicist, in an interview less than a year ago solemnly told the press that he hoped that degenerate humanity might be wiped out so that the gentle chimpanzees could take over. Should I send him? Do you suppose that I haven't brooded, pondered, yes, even prayed . . . ?"

Before he could finish his outburst, the most remote door of the great, dim living room burst open and three little girls swarmed in. "Daddy, you forgot that it's *our* time. We've all been good all except Silly, once, and we've eaten all of our dinner, and it's dark, and so it's *our* time!" accused Gabriella gravely, her pretty face intensely serious.

"You know you did!" added Pamela, her dark black curls bobbing vigorously. "Just because our governess isn't here today . . ."

"Governess," corrected Gabriella sternly as Elsa, the youngest, giggled.

"Adelaide took the day off," Elaine apologized, "but she should be back soon." She glanced nervously at her wristwatch. "She should be back any minute. Do you mind?"

Chancellor Norbert Parker-Horst, first overlord of Eurica and suzerain of Gonwonda and Asianesia, defenseless, admitted himself defeated by an invasion of very small girls. Gabriella and Pamela swarmed into his lap while Elsa, for whom there was no more room, disconsolately tugged at his knees.

"I wanna play games," demanded Elsa, tugging harder.



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"What sort of a game, Silly?" demanded Gabriella.

"Let's play Hit the Bit."

The chancellor twitched nervously at the notion of indulging in a recognition-reaction game with an intellectual involvement of zero to four decimal places. He caught the fleeting edge of a thought that at times his own children were as alien as the station-builders of Procyon IV. He glanced helplessly at his wife, but Elaine was gliding away towards the dining room.

"Tell you what," he blurted, desperately reviewing all of the ancient games known to him, trying to find one with a common denominator. "Let's play Many Questions."

"Many Questions? What's that?" the children chorused in unison.

"Oh, it's a fine game. I think of something and then I tell you whether it's animal, vegetable, or mineral. Then you ask me as many questions as you want to find out what it is, but all I have to say is 'yes' or 'no.' You take turns asking questions, and whoever guesses what the thing is gets to think of the next thing and answer the questions. Would that be fun?"

They all agreed that it would be, and the chancellor announced that the subject was mineral. As the questions circulated, Elaine inconspicuously returned, settled into a nearby chair, and acquired a lapful of Elsa. She joined the game after one round, and she also took on the post of referee.

Eventually Elsa, having been set up by an obvious question from Elaine, identified the subject as the nylon flag over the chancellor's residence. After her burst of triumphant laughter had subsided, she crowed, "Now it's my turn." She pondered briefly and then clapped her hands. "Animal," she challenged.

A flurry of questions established that this particular animal was alive and larger than the family's Labrador retriever but smaller than an elephant. It was dangerous sometimes, and it lived in the Electoral Zoo, and it wasn't a bear, or a buffalo, or a deer.

It was the chancellor's turn to question. "Is it in the cat family?"

"No!" shouted Elsa, choking with laughter.

"Is it a rhinoceros?" asked Gabriella.

"No!"

"Is it a hip, uh, hippopotamus?" Pamela ventured.

"No!" Elsa surrendered to another mirthquake of laughter.

"Could it be a crocodile?" Elaine suggested.

"No, no, no!" Elsa howled gleefully.

By now chancellor Parker-Horst was heartily sorry that he'd thought of the game in the first place. He was easily the most important person on the planet, and he'd gained and held that position because he'd been able to tackle and solve thousands of intricate problems that had baffled



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lesser minds. Was he to surrender to an eight-year-old child, and that child his own daughter? As a matter of fact, yes he was. "I give up," he conceded. "What is it?"

"It's a lion!" Elsa triumphed, roaring with laughter.

"A lion?" He was stunned. "But I asked you if it was in the cat family, and you said 'No.' "

"Elsa wins," announced Elaine tactfully, "and now it's time for little girls to go to sleep. And I think I just heard Adelaide speak to the guard in the front hall."

The group dissolved and reformed as the governess appeared and firmly took charge of the mildly protesting children. Elsa vainly tried to start another round of Many Questions as she and her sisters were marched off to bed. The chancellor sat woodenly, going through the good night ritual in an oddly offhanded way.

Elaine had to ask him twice to come to dinner after Adelaide returned from her nursery duties. The meal was a culinary triumph, but he hardly seemed to notice. Asked to pass the butter, he handed Adelaide a basket of rolls. He absently ladled apple butter over his glazed carrots and just as absently ate them while the women and the butler all frankly stared at him.

Stirring a seventh cup of coffee, to which he had added sugar twice, he suddenly shouted, "That's it! That has to be it! That's what I'll do."

Elaine regarded with dismay the puddle of coffee that she had spilled on the damask tablecloth as she set down her cup with a hand that still shook. "You'll do what?" she gasped.

"Send Elsa to Procyon, that's what I'll do." Looking around and for the first time becoming really aware of the women, he quickly added, "Not our own Elsa, of course. But look, she won that game because she didn't know that a lion is a cat. I couldn't have done it. Neither of you could have done it. But she did do it, and beat all of us."

Noticing that the butler was goggling at him, he hastily added, "Sorry, Groggins, but please retire from the room until we ring for you."

"What do you mean? What's Elsa got to do with Procyon?" Elaine demanded.

"We've already discussed the problem of whom to send to Procyon to meet the aliens. If we don't, we'll be the contacted party, subject to all the danger which you so rightly suggested. Artists and scientists are out. I hardly need add that political administrators would be even worse. And we can't really send eight-year-old children. But whom do we send?"

"Don't tease me. Tell me," implored Elaine, as the wide-eyed governess looked from one face to the other in total bafflement.

"I am telling you. Sorry, Adelaide; I'll bring you up to date presently, after renewing your state and



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personality declarations in spades. I'll start right now by reminding you of your special status as a *de jure* member of this family."

Turning to his wife, he continued excitedly, "We need the trustfulness of a Dunbar who tells the aliens exactly where we are, combined with the faith in our technology which led him to set half a dozen riddles for them. We need the ingenuousness of an Elsa who doesn't know that a lion is a cat, although she knows what a lion is and what a housecat is."

Smiling at the stunned governess, he continued, "We need the loyalty of an Adelaide who will sit here with her curiosity strained to bursting without asking a single question. To this we add a technical knowledge of our strength and our overwhelming will to be free."

"And where on earth will you find such paragons?"

"We won't find them. We'll create them. Tomorrow I'll implement a program for screening the whole population, successful candidates to become electors automatically. Loyalty and trust and intelligence, with a conspicuous lack of hard scientific knowledge. Adelaide, you're already an elector, but you might qualify. Frankly, I wish I could."

"But . . ." protested Elaine.

"The scientific background can be provided, using hypnotics. But the science will be tailored. We'll give our candidates the whole bold sweep of the physical sciences—but we'll leave out all of the hundreds of limitations that real science has to contend with. We'll also teach them linguistics. Best of all, their knowledge will be open-ended."

"Open-ended?" Elaine echoed.

"Extra bonus points for us. The aliens have obviously developed along lines other than ours. They have the ultralight drive—but lack transistors. Obviously we'd have ultralight, too, except for the fact that our scientists 'know' things which just happen to be false. Our candidates will be free of any such impediment."

He sipped coffee and for the first time noticed the extra sugar. "There might be something to gain by turning loose a batch of such specially conditioned people in our own laboratories every dozen years or so." He fell silent, meditating.

Dunbar had been right. With the knowledge gleaned from the artifacts that he had brought back with him, a pilot ultralight ship was ready in two months, in spite of the time lost in weeding out the experts who "knew" that various suggested approaches would not work.

Six months after the pilot ship had orbited Pluto and returned in two hours, just as the carefully isolated contact team was pronounced ready, the ultralight starcruiser was ready for them. The young idealists boarded the craft with stars in their eyes. And they arrived on Procyon IV just as the Ysterbaxi force was



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completing its survey of the Tellurian artifacts left by Dunbar.

The exchange of diplomatic missions by Tellus and Ysterbaq was celebrated on both worlds by appropriate planet-wide festivities, one of which was a grand ball in the state residence of Chancellor Parker-Horst. The living room was not at all cavernous with every chandelier glowing and soft music playing as humans and Ysterii politely made their way through the throng.

In one of hundreds of little groups of conversationalists, two ladies drew close enough to hear each other above the gay tumult. "I've been simply *dying* to know," confessed the wife of the Elector of Ozarkia, "why was that *exciting* first contact with the Ysterii called 'Project Lion'?"

Elaine smiled lambently. "My dear, you know how men are. But I believe that it had something to do with the Theory of Games." ■

## *The Analytical Laboratory*

*February 1967*

| PLACE | STORY | AUTHOR | POINT SCORE |
|---|---|---|---|
| 1. | Amazon Planet (Conc.) | *Mack Reynolds* | 2.15 |
| 2. | There Is a Crooked Man | *Jack Wodhams* | 2.43 |
| 3. | Elementary Mistake | *Winston P. Sanders* | 3.07 |
| 4. | Pioneer Trip | *Joe Poyer* | 3.35 |
| 5. | The Returning | *I. B. Mitchel* | 3.65 |

*Votes on "There Is a Crooked Man" tended to be extreme—lots of #1 and about an equal number of #5. It could be told only as a sort of kaleidoscope, which made it confusing; if you got the swing of it—it was as outrageous as a bunch of amateur criminals is bound to be. If you didn't—it was pure mishmash.*

*I think Wodhams is right; in a culture with a highly evolved, highly sophisticated, super-automated police system, only nutty amateurs will try crime. And the crimes have to be based on some brand-new, backyard-inventor type discovery. They'll be crimes so wild, so nutty, that no good, sound, sane, local police department would have thought of them, and no legislature imagined the necessity of passing a law against them.*

*Today there's no law against de-gravitating the Statue of Liberty and floating it off to Pike's Peak, either.*—THE EDITOR



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*The phrase "he got into something he couldn't handle" is usually meant in a figurative way. But when the skipper bought that second-hand spaceboat from a junker who couldn't cut it up, deactivate it, disarm it or do anything else with it— he really got into something he couldn't handle.*

# *The Dukes of Desire*

*Christopher Anvil*

*Illustrated by Kelly Freas*



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Vaughan Roberts glanced from the viewscreen to the landing display, and dropped the salvaged Interstellar Patrol ship into the clearing, between a gnarled tree with thorns as big as a man's forearm, and a battered space yacht whose big hatch was just swinging open.

Roberts pushed forward a toggle-switch on the left side of the control panel, and with a faint whir the stabilizer feet telescoped out, to steady the ship on its smoothly-curved underside. Roberts switched off the gravitors and unbuckled his safety harness, then slipped out of the control seat, ducked under the long shiny cylinder that ran the length of the ship, and went up several steps in the cramped aft section, to release the clamp on the small outer hatch. He spun the lockwheel counterclockwise, pulled the hatch-lever down and slammed it forward, and the hatch swung up and back. A shaft of sunlight shone in, casting shadows of large sharp thorns partly hidden by leaves.

Roberts looked warily all around, loosened his fusion gun in its holster, and pulled himself out the hatch. He sucked in a breath of fresh planetary air, glanced around at the rustling leaves and gently blowing grass, looked up at a white puffy cloud drifting across the clear blue sky, and abruptly snapped his gun out of its holster as brush moved in a rippling motion at the edge of the clearing.

A thing much bigger than a tiger, mottled gray in color, silently blurred out of the brush to bound straight for Roberts, forepaws outstretched.

Roberts fired, fired again, jumped down the hatchway, grabbed the lever and heaved.

*Clang*! The hatch slammed shut.

*WHOOM*! There was a noise like an enormous gas burner, gone almost as soon as it began. The ship quivered. Then there was a thud somewhere aft.

Roberts crouched in the cramped space under the hatch, gripping the fusion gun, and listened intently. He heard nothing more. Very cautiously, he raised the hatch.

In the slit of sunlight revealed, he could see, farther aft, the number two reaction-drive nozzle slowly settle back into position. A wisp of smoke was rising from a small gun turret a few feet from the hatch. A long shiny metal stalk, not quite as thick as a man's wrist, arced out from another turret forward, extruded a set of metal fingers, picked up a riddled and smoldering furry head and dropped it over the side. Roberts looked around, but if the rest of the body was anywhere nearby, he couldn't see it.

He thought a moment, went back and put on a bulky suit of battle armor, and decided to try again.

He shoved open the hatch, and climbed out to look at the ship. Wherever he turned, guns bristled. Small turrets, meant for short-range defense, dotted the smooth armored



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surface. Amidships, a movable belt of fusion turrets faced aft, so that he was looking down their muzzles. Farther forward, two large turrets, one behind and above the other, mounted fusion cannon big enough for a man to put his arm into. The sight of all these gun turrets, and of the snap-beam transceptor head steadily rotating atop its mast, gave Roberts a warm pleasant sensation, far different from what he'd felt the last time he'd been on this planet.

From above, where to one side the big hatch of the battered space yacht was now wide open, a rough masculine voice called down.

"The place hasn't changed much, has it?"

Roberts looked up, to see a strongly-built figure, somewhat foreshortened by his angle of vision, grinning down at him. This was Hammell, who'd been stranded here with him the last time.

"No," said Roberts, automatically glancing around the clearing, and taking a quick look overhead. "Not out here, at least. Where's Morrissey?"

"Up above. He just got through setting up the gear. Come on up, if you can stand to leave that flying fort of yours."

Roberts grunted, took another quick look around, studied the ground below the curve of the patrol-ship's hull, walked aft along one of the horizontal fins, and dropped off. The moment he was clear of the ship, there was a clang, and Roberts turned to see that the patrol-ship's hatch had shut.

From overhead, Hammell laughed, and called, "You've got that thing trained."

Roberts gave a second grunt, but no reply. The patrol ship was a sore point between them. Marooned on the planet earlier because of gravitor trouble, the three men had promised themselves to come back under better conditions, bringing with them an improved version of the device that had made their escape possible. One of the little details they hadn't settled beforehand was what they would come back in. Hammell and Morrissey wanted something roomy, comfortable—if possible, luxurious. Roberts wanted plenty of firepower, and as much armor between himself and the planet as possible. Hammell and Morrissey duly selected a large roomy yacht with a solitary energy-cannon mounted in the bow, but otherwise equipped like a luxury hotel. Roberts selected the much smaller patrol ship, cramped and functional perhaps, but armed to the teeth, and fitted with a powerful drive-unit. Neither side had compromised, and the argument was still going on.

Roberts, climbing the ladderlike recessed holds up to the space yacht's big hatch, reminded himself that he, Hammell, and Morrissey were all equals in rank for the duration of their leave. At work, Rob-



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erts was captain of the fast interstellar transport *Orion,* Hammell was cargo-control officer, and Morrissey was communications officer. Possibly for this reason, there was a little extra friction now and then. Roberts was determined not to add to it if he could help it. But he didn't intend to lean over backwards so far that he fell on his head, either.

He reached the top of the ladder, and Hammell reached down to help him up.

"It would be better if we were all in the same ship," said Hammell. "You wouldn't have to go around looking like a gorilla in an iron suit every time we have to get together. It would be a *lot* more convenient."

"You take the convenience," said Roberts, "and I'll take the guns. Where's Morrissey?"

"Up on the sixth level."

Roberts thought a moment, and remembered that on the yacht, which set down upright on its tail, the horizontal levels started with the drive-unit and storage compartment at the base, below where they now stood. The sixth level would be the control room.

"Wouldn't there be more room down one level?"

Hammell nodded. "That's where he's got the spy screen set up. But right now I think he's back up in the control room checking the communicator again."

"Good," said Roberts. "We can get an idea whether things have changed much."

Hammell touched a button beside the hatch, and the hatch swung silently shut. He and Roberts walked towards a softly-glowing oval on the deck. The right half of this oval was green, and left half red. Roberts stepped carefully onto the green, and at once the walls of the ship dropped downward, and with a soft murmur an oval section of the next level overhead slid back. One-by-one, the levels dropped past, disclosing entrances to a succession of medium-sized rooms with curving walls, designed for entertainment, eating, sleeping, and then they passed the level where Morrissey had set up the equipment, and reached the control room, which seemed comparatively small because of the inward-curving sides near the nose of the ship. Roberts caught a polished silvery bar, and stepped out of the lift. He nodded to the lean sandy-haired individual who glanced up with worried electric-blue eyes from the communicator.

"Hello, Morrissey," said Roberts.

Morrissey blinked in momentary alarm at the battle armor.

"Sir," he said automatically, then added. "Something's changed since we were here before."

"What?"

"The screen no longer gives continuous news broadcasts from the city."

"That doesn't sound good."

"It sure doesn't. So we can see what's happening, I've let go the



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spy-system pickups, set to tap onto the city's surveillance network. I hope *that* works."

"Yes," said Roberts, remembering that this had been Morrissey's big worry. "When will we find out?"

"If nothing's wrong, we ought to be able to pick up the relayed signals any time now. I came back up here because I didn't want to sit down below chewing my nails."

"Let's go take a look now. If we can't get that spy screen to work, we're in a mess right at the beginning."

They dropped down to the next lower level, to see with relief that the big spy screen, though still unfocused, was already lit up. As Roberts and Hammell dragged over some chairs, Roberts climbed out of the battle armor.

They sat down in the three chairs, in front of the wide improvised control panel, and Roberts, in the center, adjusted the focus of the spy screen. At once, he had a sharply-detailed view of a potholed street strewn with trash. To the left was a large building with the windows knocked out. To the right was a park where rats scurried amidst the leafless dead trees and smoldering heaps of garbage. Straight ahead, in the center of the street, two small boys stood menacingly with short lengths of iron pipe, their legs wide apart, their clothes ragged and dirty save for armbands marked with triple lightning-bolt insignia. Just rolling onto the screen were a pair of roboid policemen, their whip antennas swaying, the sunlight flashing on the spokes of their high bicycle-type wheels.

Morrissey, to Roberts' right, gave a surprised grunt.

Roberts said, "If this is typical, no wonder they aren't broadcasting."

Hammell nodded. "There's nothing like disorder and violence to get people worked up. And there's nothing like having people worked up to bring on disorder and violence."

"And this is just the spot for it," said Roberts. He was thinking of the gigantic slum-city, built by a beneficent foundation and peopled from the slums of half-a-dozen older worlds. But it struck him suddenly that it applied to the whole planet as well.

He glanced out one of the space yacht's portholes at the small bristling Interstellar Patrol ship below. Roberts had located the patrol ship in a salvage cluster, and the salvage operator had been only too happy to trade it for most of Roberts' accumulated savings. There were quite a number of special devices on the patrol ship, any one of which was worth far more than the purchase price. But this didn't affect the salvage operator's delight in getting rid of the ship.

In the first place, his sharpest tools and hottest torches wouldn't cut the patrol ship's armor. In the



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second place, the patrol ship's large and numerous weapons were controlled by a combat computer, which came on automatically whenever anyone tried anything that promised to blast off a chunk of high-grade metal. In the third place, worst of all, the ship was partially controlled by what was sometimes called a "symbiotic computer." This computer had apparently existed in a special relationship with the former crewmen, and now it passed judgment on prospective purchasers, applying roughly the same standards that were necessary to enlist in the Interstellar Patrol. If the prospective purchaser wasn't up to par—mentally, physically, or morally—the computer disdained him. As a result, nothing on the ship would work for him.

Roberts had barely squeezed by the computer's forbidding scrutiny. But that was all he needed to do. The ship flew for him. Roberts soon found himself with a ship equipped with an armament fit to dent a planet. The salvage operator, for his part, relievedly blew a kiss after the dwindling speck in the distance, and resolved never again to touch anything like that unless he had a private dreadnought to break it up with.

Now, on the planet, Roberts looked out with pleasure at the ship, but at the same time got a view of the trees that surrounded the clearing. Just what was hidden back in those trees, perhaps only fifty feet from the clearing, would have been hard to say. But the space yacht, while coming down to land, had run into some kind of monster with the bad judgment to jump up and take a snap at one of the big fins that would steady the yacht as it stood on its tail. The fin, with the weight of the yacht behind it, crushed the animal. The smell of blood having already apparently spread the promise of a free meal, Roberts could see that other creatures were now prospecting around. There was a flap of big wings overhead, and the rustle of leaves at the edge of the clearing. Just what would pop out when was hard to say, but Roberts took a quick glance at his suit of battle armor, fixing its location in mind so he could get into it with no wasted time if he had to. Then he reluctantly placed his trust in the space yacht's energy-cannon, and turned back to the spy screen.

Hammell was leaning forward tensely, "Something's getting ready to blow in that city. Otherwise the police just wouldn't be this heavily reinforced."

On the screen, two more roboid policemen had swung into view behind the first pair, and these were followed in turn by a flying wedge of roboid police.

Straight ahead, the two boys in the middle of the street stayed where they were and jeered.

Roberts glanced at the locator screen in front of Morrissey. This



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screen was marked off in city blocks, like a big elongated chessboard with oval edges. A strip of street, running through an intersection and about a fourth of a block farther in both directions, was lit up whitely, showing the section now in view on the spy screen.

As Roberts glanced from one screen to the other, suddenly the two boys snapped their arms forward, the lengths of pipe arced out, to slam into the roboid police, and twin flashes of dazzling light outlined a tangle of ripped and torn metal housings, shredded insulation, bent tubing, and bare gears, shafts, and axles. The first pair of roboid police smashed to a stop.

The two boys were already sprinting toward opposite sides of the street.

The second pair of roboid police rolled unswervingly past the wreckage of the first.

Roberts, Hammell, and Morrissey stared at the screen, their expressions perfectly blank.

From behind a heap of garbage at the edge of the park, two more boys raced out, clutching short lengths of pipe.

As Morrissey snapped a switch, twin speakers to either side of the spy screen came on, relaying sounds from the scene. An amplified voice spoke out:

"Clear the street. This warning will not be repeated. Clear the street. Further violence against your Law-Enforcement Officers will be met with maximum force. Clear the street."

The two boys sprinted directly toward the approaching roboid police. Their right arms swung back. Their faces twisted in hatred and contempt, and their arms swung sharply forward. The short lengths of pipe streaked out, slammed into the fronts of the pair of oncoming machines. There were two dazzling flashes.

The roar of the explosions drowned out all other sounds. The boys had already separated, to sprint, off-balance from the force of the explosions, toward opposite sides of the street.

Two more roboid policemen smashed to a stop in a whirl of flame, smoke, and showers of sparks.

Behind them, the V of the flying wedge rushed forward. Unlike the others, which had been light-blue, these roboid police were painted black with silver markings.

In the building to the left of the street, the doors now swung open, and small groups of boys sprinted out to form a line completely across the street. The ends of the line rushed forward, then the center, forming a rough inverted U that raced toward the oncoming V. The V opened briefly to pass the wrecked police machines, then closed again in precise alignment.

For a moment there was a silence broken only by the hiss of tires on pavement, the pound of feet, and



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the panting of breath. Then there was a concerted yell, *"Kill the mechs!"* The boys' arms swung back in unison.

At the fronts of the police machines, small doors snapped up and back. From behind each door came a bright spurting flash.

The boys' arms flew out, their knees buckled, and their lengths of pipe dropped free as they fell sprawling to the pavement amidst sudden dazzling flashes of light.

The flying wedge of roboid police swept steadily forward with no change of speed or direction. Their narrow tires, heavily-loaded, crossed the torn inert bodies, cut, ground, and slashed them. The tires and rims turned red, to lay down narrow red strips in absolutely straight lines on the pavement.

Hammell, Roberts, and Morrissey, momentarily unable to move, sat with their hands gripping the edge of the control panel.

A pretty woman, a baby bundle in her arms, rushed from a door down the street, screaming, "My boys! My boys!" and ran toward a pair of the inert, mangled bodies, herself coming into the path of the flying wedge.

In the fronts of the onrushing police robots, the little doors snapped open.

Hammell gave an inarticulate sound of horror.

Roberts, his mind a whirling maze of calculations, came to his feet. His patrol ship was heavily enough armed to handle any concentration of police robots. If he took the ship to the edge of this section of the city . . .

On the screen, directly in the path of the flying wedge, the woman screamed, and raised her bundle high overhead, as if to lift her baby out of danger.

From behind the little doors, bright flashes spurted out.

Roberts had already started to turn away, his hand reaching out for the battle armor he had to wear to cross the clearing.

On the screen there was a huge, brilliantly dazzling flash as the "baby" blew up.

Roberts, blank-faced, one hand on the battle armor, stared at the screen.

Beside him, Morrissey stood motionless with a perfectly blank expression.

Hammell grunted in disgust, and settled back into his seat.

Roberts tilted the battle armor back against the wall of the ship and sat down.

On the screen, the wedge of roboid police swept by, followed by two long columns of roboid police firing as they passed at the building and into the dump on opposite sides of the street.

Down the street at the end of the building, a flash of movement left Roberts with a brief afterimage of something vaguely shaped like a camera, that had apparently re-



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corded what had happened so far, and was now pulled inside as the roboid police came dangerously close.

The long double column of roboid police was now slowing to a halt, the point of the wedge extending exactly to the center of the intersection beyond the far end of the building. From the left, a second wedge followed by another two columns appeared from behind the building, moving along the intersecting street, and joined up with the first wedge. The individual roboid police now had turned ninety degrees, to face the building and the adjoining parks, and the lines of police themselves moved farther apart, to open up a wide protected strip of avenue between the lines.

Down this protected roadway came something long, low, and broad, with jointed body sections running on many wheels, with turrets on top slowly swinging large muzzled uptilted guns toward the building.

From the building came shots and small bundles that arced out and down. Up and down the street, more small bundles flew out from the cellar windows. With bright flashes, gaps began to appear in the lines of roboid police.

The long many-wheeled device now slowed to a stop. Its upward-pointing barrels moved slowly, methodically. At the mouth of each barrel there was a blur, then another blur, then another blur.

From the windows of the building came a flash, then from the next window another flash, then from the next window another flash.

Another long low many-wheeled device rolled past the first and stopped farther down the street, to heave its explosive shells through the next section of windows.

The repeated short blast of a whistle cut through the roar of explosives. The tossing of bundles from the windows abruptly stopped.

Down the street came a chunky vehicle with several big hemispherical bulges at the top. It stopped at a thing in the street like a manhole cover, flipped the cover off with two pronged levers, eased forward and dropped something round and bellowslike over the hole. Wisps of yellowish smoke began to escape around the edges.

"Sealing off the sewer system," said Hammell. "No one will get out of the building that way."

"They'd better get out *some* way pretty quick," said Morrissey, "or they aren't going to. Look there."

A low blocky object, like a huge metal brick, heavily mounted the sidewalk, and moved massively forward on concealed wheels or rollers. The door of the building snapped back before it like a matchstick, there was a bright flash from underneath, with no visible effect, then the device was inside. It backed up, taking half the doorframe and part of the adjoining wall with it, and rolled forward again. In the silence



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now that the shooting had died away, there was a dull heavy *crunch*. The massive device then reappeared, and rumbled down the sidewalk toward the next door. Behind it, there now moved forward a host of spidery devices, varying from about one to four feet tall, that moved methodically into the building, followed by low long broad things with many short legs, like metal centipedes. These crawled off of a steady procession of low broad-roofed carriers with open sides, that rolled up the street, discharged their cargo, and moved on to vanish around the corner.

Time passed, and spidery many-legged metal forms appeared on successively higher floors of the building, and finally on the roof. But only two humans were carried out, and both of them were plainly dead.

Meanwhile, a small crowd of people had gathered, apparently from neighboring buildings, to watch raptly from the far side of the double line of roboid police. As the metal devices appeared on successively higher floors, the people pointed and shouted in pleasure. As the dead bodies were carried out, they cheered.

Roberts sat back and looked blankly at Hammell. Hammell shook his head. Roberts glanced at Morrissey. Morrissey ran his hand over his face.

"Well," said Roberts finally, "before we can decide what to do this time, it looks like we're going to have to figure out what's developed out of what we did the last time."

Morrissey nodded. Hammell looked moodily out at the clearing.

From behind them came the bland voice of Holcombe, the life-like roboid butler that had come with the space yacht, and added a special touch of luxury that had enabled the manufacturers to charge what they had for this deluxe version of the ship when it was new.

Holcombe was saying deferently: "A little light refreshment, my lords?"

Morrissey said wearily, "Just a pitcher of water, Holcombe. Plus three glasses and a large bottle of aspirin."

"Yes, my lord." Holcombe bowed and retired.

The three men stared moodily at the screen.

It took them most of the day, methodically working with the spy screen to get a rough idea what was going on in the city. Once they had it, they sat back in exasperated baffllement.

From one end of the city to the other, barring only the region around the Planetary Control Center itself, a highly-organized gang of fanatics seemed to be at work, operating from a network of their own tunnels. These tunnels were independent of the city's network of steam lines, cables, pipes, and underground maintenance tunnels, though the two connected at a num-



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ber of points. Except at these points, the city's surveillance devices showed nothing of what went on inside the newly-dug tunnels. Hence the spy screen, which operated from taps on the city's surveillance system, also showed nothing, except at these points. But from watching the movement of maintenance and combat devices inside the city's tunnels, it became obvious that a continuous skirmishing and probing was going on, with the computer trying to isolate and clean out sections of the fanatics' tunnels, while the fanatics calculatedly sabotaged water pipes, steam lines, and power cables, to keep the computer distracted with maintenance problems, and its tunnels clogged with maintenance devices. Meanwhile, above ground, gangs of fanatics, wearing triple-lightning-bolt insignia, burst out to seize able-bodied protesting citizens for work in the shovel gangs. The general bulk of the populace, if anything, looked more rundown and put upon than before. Now they had two sets of rulers instead of one, and the rulers were at war with each other.

"This network of tunnels," said Hammell finally, "makes it a mess. How do we know what effect we're having on them if we can't see them?"

"We can try," said Morrissey, "to figure it out from what happens afterward."

"That's nice. We can figure out whether a bottle had nitroglycerine in it by 'what happened afterward' when we jarred the bottle."

Roberts studied the screen. "Suppose we bring them all to the surface, then?"

"How?"

"Have we got anything on that list that will serve the purpose of claustrophobia?"

Morrissey blinked. "That's a thought." He ran his finger down a paper tacked by the locator screen, flipped the paper up, and ran down a second list underneath.

"Here we are. 'Desire for light and air.' 'Desire to escape confinement.' " He flipped up the next page. " 'Desire for room, space.' "

"Just what we need. How would you like to be down in a tunnel and suddenly start to feel one of *those* desires?"

"I wouldn't. But if I were a fanatic, maybe I'd be able to resist it."

"Could we work it so that a *blend* of all those desires would be generated? After all, with this synchronous rotor setup you worked out, we can hit different sections with different settings at the same time. Why not the same section with several settings at once?"

Morrissey blinked, and looked wary. "But not throughout the whole city?"

"*No*, of course not," said Roberts. "Who knows what would happen? No, just try one place at a time. A good spot to start might be near that building where all the fighting was earlier. There should



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still be some people in tunnels under there. Then we can see how this works."

Morrissey nodded. "Good idea. We'll try it."

They switched the spy screen back to a view of the building, and of the garbage-filled park beside the building, and Morrissey set up the want-generator to hit just that section of the city with "desire for light and air," "desire to escape confinement," and "desire for room, space."

Then they watched the screen.

*Somewhere underground, there* should be some fanatical humans, lurking in tunnels, and suddenly stricken with an urgent desire for light, air, and unconfined space.

Very soon, these humans should come to the surface somewhere.

For a long time, they waited.

But for a long time, nothing happened.

Roberts, frowning, studied first the building, then the park, to make out finally, in the center of the park amidst the enormous heaps of garbage, the remains of what appeared to be a bandstand. He was frowning at this structure, when a wild-looking individual with improvised gun in one hand suddenly burst out a trapdoor in the center, and plunged out into the heaped-up garbage. Right behind him came two more, their faces frantic and chests pumping desperately for air. After the first three came a flood of humanity, each carrying a club, a length of pipe, a gun apparently taken from a wrecked roboid policeman, and fitted with a stock, or some other weapon. There was no room for them all on the bandstand, and in any case they didn't try to stay there, but immediately sprang off into the heaped garbage, to plunge and heave desperately, as if trying to climb up into the open air itself.

Last out of the hole came a man about five feet ten inches tall, strongly built, neatly-dressed in coveralls with triple-lightning-bolt armband, carrying a rifle in his right hand, and plainly boiling mad. He gestured angrily toward the trapdoor, shook his fist, and threatened the others with his gun. His voice came out in a flow of words so rapid that all Roberts could make out was the sense of urgency and the tone of command. Meanwhile, the scores of armed men ceased their struggles and lay flat, face-down in the garbage, or stared up dazedly at the open sky overhead, and tried to act as if they didn't hear.

At the same time, around the edges of the park, roboid police began to pour in from eight different directions, coming both ways along the four wide streets that intersected to form the boundaries of the park.

It dawned on Roberts that this scene must have appeared on some panel in the Planetary Control Center, or otherwise have come to the attention of the planetary comput-



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er. And the computer was losing no time in taking advantage of the windfall.

A new urgency came into the voice of the man on the bandstand.

Around the sides of the park, the rapidly accumulating roboid police milled, searching for some route through the heaps of garbage. Here and there, one or two eased in, went forward a little distance, lost headway, came to a stop, backed up, and slammed forward again, to bog down once more in towering piles of decaying trash and garbage.

Down one of the intersecting streets came a long snakelike wheeled carrier, that pulled alongside the edge of the dump and slowed to a stop. The arched armored roof tilted up and back in sections, the first sections swinging far back to brace the carrier from tipping off-balance as, successively, other heavy sections swung up and over. Out of the carrier crept a long device like a metal centipede, with flanged underside instead of legs. The device inched its way forward as successive waves of expansion and contraction moved along its length. The headlike appendage at the front, fitted with multiple visual receptors behind thick glass plates, and two groups of four large gun muzzles on a side, selected a low place between two heaps of garbage, and pushed forward steadily, thrust ahead by the metallic bulk following along behind in steady successive waves of expansion and contraction; the flanges lifting, tilting, flowing forward, dipping down, and thrusting steadily back.

Now an amplified voice boomed out:

"You are surrounded. Surrender peacefully and you will be remanded for psychiatric examination to the Central Medical Computer. You will not be harmed. Resist, and you will be destroyed at once. You have no choice. Surrender. Throw your weapons toward the—"

Atop the bandstand, the man who'd been arguing with the others had dropped to one knee, his gun resting on a half-rotted rail at the edge of the platform.

There was a solitary bang, and the voice demanding surrender went silent.

Morrissey said, "They aren't throwing their guns out, and they aren't fighting, either. That metal snake is going to get to them in about a minute-and-a-half and blow them to bits. Isn't there something we can—"

Roberts thought fast, and said, "Reset the generator. Hit them with 'Desire to obey the law.' "

Morrissey flipped quickly through the list, glancing nervously back at the screen as the enormous metal centipede crawled steadily through the piles of trash.

"Do we *have* 'Desire to obey the law'?"

Roberts tore his gaze from the



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screen. "It's halfway down the list. 'Obedience to authority' or something like that."

"That's it," said Morrissey. Quickly, he reset the want-generator.

On the screen, the leader of the humans, on the bandstand, was talking in a low urgent voice, lying flat on the stand as a metallic head started up over a mound of trash, and suddenly every other human stood up. Every single individual either threw a length of pipe, or threw a padded bundle, or fired a gun, or lunged right or left through the garbage to get a clean shot or throw around the side of the stand.

Everyone's aim was good.

In a terrific series of flashes, the head end of the huge metal centipede blew apart.

In one spontaneous surge, the humans then plunged through the garbage to the stand and, in a line that moved like clockwork, dropped one-by-one through the trapdoor into the interior.

All save for the leader, who was now on his knees, hands clasped and head uplifted, lips moving, his expression earnest.

"Shut it off," said Roberts exasperatedly.

On the screen, the leader suddenly bowed his head, opened his eyes, and jumped down the hole.

The trapdoor slammed shut.

A plume of dirty smoke climbed up from the wrecked front end of the metal centipede.

"*Now* what?" said Morrissey, glancing from the controls to the screen. "Did I somehow get the wrong setting?"

"No," said Roberts. "As usual, it was the right setting, but they just interpreted it their own way. To them, 'desire to obey authority' meant desire to *obey their leader.* And to their leader, it apparently meant desire *to obey God.* None of them had the slightest impulse to do what *we* intended, and obey the *city* authority—the computer and the roboid police."

"Well," said Morrissey, "all I have to say is, this little incident opens up sweeping vistas of trouble ahead. *Other* groups of people in that city *would* have obeyed the city authorities."

Roberts nodded. "Their reactions are more diverse than they were the last time. It's as if they were somehow splitting up into fractions that respond differently to the same desire."

Hammell cleared his throat. "And there's one minor fraction that apparently can resist the desire-field when it conflicts with his purpose—the leader of that gang. To hit *him* with the effects we want might take an intensity that would send the others into shock."

Roberts considered that in silence."

"You've got to admit we're getting nowhere," said Morrissey.

"We've just started," said Roberts stubbornly.



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Hammell said sourly, "Yeah. We're finding out the things that *don't* work."

Outside in the forest, where darkness was starting to gather, something gave a bellowing roar that the yacht's thin hull hardly seemed to muffle.

The roboid Holcombe appeared at the entrance to the gravity lift, and bowed.

"Dinner is served, my lords."

Dinner was a sumptuous meal, but halfway through the dessert the curving wall of the space yacht's dining saloon lit up in a reflected pinkish glow. There was a bellow of pain and rage from outside. From overhead came a metallic rattle, then a muffled booming voice:

"Your attention, please. This vessel is fully protected by appropriate devices of the Advanced Synodic Products Corporation. It will retaliate automatically against any aggressive or hostile action."

There was a second glare of pink light, the deck shook underfoot; there was a bellow that traveled around in a large circle outside; then abruptly there was a dazzling white glare, followed by a sizzle as if ten tons of meat had been dropped into a monster frying pan.

Roberts quickly understood that sound. It meant that some gigantic beast, singed by the space yacht, had galloped around and got too close to the patrol ship. Which of the patrol ship's big fusion guns had done the business was a good question, but it was all the same to whatever got in their way. Roberts finished his dessert quickly, anxious to get back to something with a hull that wouldn't fold up if some irritable monster took a crack at it.

Hammell said nervously, "The stinking fifth-rate computer on this tub must not be able to distinguish between dead behemoths lying around, and live ones sneaking in. Otherwise, how did *that* thing get so close?"

"Yes," said Roberts, getting up and reaching for his suit of battle armor. He tilted it off-base, lugged it over to the table, reached inside and turned a valve that relaxed the hydraulic columns inside. The suit slumped facedown on the table, which creaked under it, then Roberts heaved the back panel open and climbed in. Without a sling to hold the suit upright, getting into it was a fairly ridiculous procedure, but neither Hammell nor Morrissey had anything to say about that. They were too busy staring out into the dark clearing, and worrying about ways to get a little more protection out of the energy cannon and the pure-routine computer that operated it. Hammell finally shook his head, glanced absently toward Roberts, and suddenly jumped back.

Roberts had straightened up, and was just swinging the back panel shut. He grinned.

"What's the matter? Don't I look nice in this thing?"



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Hammell's laugh came to him clearly, through the earphones of the suit. "I've already told you. You look like an overgrown gorilla. I was thinking about those animals outside, and for a second, I thought one had got in. Ye gods, that suit is big! Is it hard to work the arms?"

"A little," said Roberts. "Not too bad."

"Why's the helmet so big?"

"I don't know. It's not big inside."

"Well, it must be comforting to be inside that."

"You want one?" said Roberts. "There are three extras just like it on the patrol ship—for three other crew members. In fact, you could sleep there. There are four bunks. I could bring back a couple of extra suits for you to wear across the clearing, and—"

Hammell hesitated, then shook his head.

"No, thanks. Even at used-ship prices, we've got too much invested in this yacht to leave it to the mercies of these beasts, even overnight. And we couldn't work in armored suits, so—thanks anyway."

Reluctantly, Roberts nodded. "O.K. then."

The three men said good night, and Roberts went down the gravdrop, out the hatch and into the night.

Roberts was sound asleep when, sometime during the night, there was a banging noise somewhere outside. It reached him well-muffled and distant, and he merely turned over and pulled the covers more tightly around him.

Several hours went by, broken by very faint distant bellows and screams, and booming far-off public-address-system noises.

Around four in the morning, there came a thundering crash.

Roberts woke up enough to wonder if he had heard something, but quickly fell asleep again.

About 0630, the symbiotic computer gradually turned up the lights, and then woke him with a buzz.

Roberts slid out of the bunk, performed a series of exercises to the computer's satisfaction, shaved, showered, dressed, ate an A-ration bar, drank two glasses of water, swung the suit of battle armor out on its sling, got into it, and headed for the hatch.

Roberts had the hatch up, and had already pulled himself halfway out, before he saw what was going on outside.

Three huge mottled-gray cats were working on the remains of several gigantic bony-snouted creatures, tearing the meat off the bones in chunks, and wrestling with sheets of tough fibrous membrane that apparently separated one huge bundle of muscle fiber from another.

Creeping in on the cats, apparently for a quick grab at a chunk of the meat, was a long many-legged segmented green creature with jaws about three feet long.

Overhead, light-blue against a



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sky that was a darker blue with drifting white clouds, huge birds circled, the dark green of their upper feathers showing from time to time as they dipped, eyeing a behemoth with suggestively flickering sledgehammer tail, that was upright on two pillarlike hind legs beside the space yacht. The head and shoulders of this beast were inside the yacht, the big door of the space yacht being buckled outward, and the side inward, to make room.

Studying the other animals with cold calculating gaze from the foliage of a nearby thorn tree, was a large snaky head.

Roberts dropped back inside the patrol ship, and slammed the hatch.

The voice of the symbiotic computer spoke from the helmet's earphones.

"For an armored member of the Interstellar Patrol to retreat in the face of mere beasts, with onlookers watching from another ship, is unacceptable."

"To do anything else would be nuts. And as I've explained at least a dozen times, I'm *not* a member of the Interstellar Patrol."

"Evidently you've neglected to study your 'Model A-6 Battle-Suit Dynamics.' A demonstration is in order. Press down the chin-lever in the left side of the helmet."

Roberts, not wanting to pointlessly antagonize the computer, pressed down the lever. He immediately found himself walking toward the hatch. Before he knew what had happened, he'd thrown the hatch open, and was climbing out.

The three gigantic cats looked up from their meal and bared their teeth. The green many-legged creature swung its yard-long jaws around and hissed. In the thorn tree, the snaky eyes looked on with cold calculation.

Roberts dropped off the curving side of the ship, his feet sinking deeper into the soil at every step, as if the suit were acquiring mass as it moved forward. He was headed straight for the green many-legged creature.

After a moment's startled hesitation, this beast opened up its yard-long, four-foot-wide jaws, and lunged for Roberts.

Roberts' right foot came up in a kick that left a ten-inch-wide groove in the soil, hit the creature's lower jaw and shut it with a *CLACK!* that echoed around the clearing.

His right hand then reached out, seized the top of the creature's snout, and yanked it down, cracking its nose into the ground.

The three huge cats began edging back toward the forest.

All the many legs of the green creature now began to kick, but Roberts set his feet, turned the whole head over sidewise, pinned the upper swell of the head under the right arm of his suit, and gripping the forward curve of the snout with his left arm, heaved the head



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of the monster along with him as he started for the space yacht. Behind him, the rest of the beast lifted clear of the ground, like one cable of a suspension bridge, the far end anchored out of sight somewhere back in the forest.

Roberts kept going for the space yacht, his feet sinking as if he were in soft muck.

Behind him, there was a heavy rending, a loud creak, successive cracking straining noises, then the rustling, and swishing of uncounted leafy branches, followed by the ground-shaking crash of a big tree.

The far end of the many-legged creature suddenly was trotting along, stumbling and lurching as it crossed ground not selected by the head end, so that some of its feet went down into holes while others banged into rotting logs and low hillocks, but the creature did its best, and stopped instantaneously when Roberts stopped, beside the gray pillarlike leg of the behemoth that had its shoulders and snout inside the space yacht, and its huge sledgehammer-like tail swishing threateningly behind it.

Roberts unhesitatingly reached up, gripped one of the tail's muscular cords, that stood out like tree roots, and yanked on it.

The upper end of the creature froze. There was a menacing rumble. The tail wrenched, twisted, and couldn't get free. The head and shoulders of the behemoth jerked back and out of the space yacht. Roberts gripped the tail. The animal tried without success to step back to get its balance, but Roberts held the tail while his body blocked the right rear leg.

Ponderously, stamping hard with its left leg to try to right itself, the creature tipped over, to land full-length with a shock that jarred the earth.

Overhead, in the thorn tree, a little flutter of leaves marked the departure of the snake.

The behemoth lay still for a moment, in shock, then sucked in a huge breath of air, let out a ringing high-pitched bellow, rolled over, twisting its tail loose at the expense of a large chunk of skin, and staggered to its feet.

Roberts took a few steps, bent, shoved his armored left hand through the dirt under the behemoth's left hind foot, and heaved it up.

Roberts himself sank into the soil as if it were quicksand, but the behemoth's left hind leg shot high up into the air, and the whole creature went up and over on its back with a jar that made the trees sway.

The many-legged creature again had its nose pinned to the earth, this time because Roberts was down inside a form-fitting foxhole in the soil, but was still absently holding onto the many-legged creature with his right hand. For its part, it kept its eyes shut, its mouth closed, and just waited to see what Roberts wanted it to do next.



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Roberts pulled himself up out of the ground.

The behemoth staggered to its feet, gave a pitiful bleat, and bolted for the forest.

Roberts let go the head of the many-legged creature, its eyes came warily half-open, and with steadily gathering speed, it headed for the forest.

Roberts looked around, saw that the clearing was deserted, and climbed up the handholds into the space yacht

Inside, Hammell and Morrissey stared at him as he climbed out of the battle armor. The suit having done practically all the work, Roberts was just slightly damp with perspiration.

Hammell and Morrissey, on the other hand, looked like they'd spent the night being bounced around in an oversize tin can. Which, Roberts thought, was probably exactly what had happened.

"Well," he said, "are you guys *sure* you don't want to come over to the patrol ship?"

Hammell stared at the armor, and said hesitantly, "Ah— No offense, but— Look, was it *your* idea to just go out there and kick those monsters around?"

"No," said Roberts frankly, "the symbiotic computer on the patrol ship got the idea, and it . . . well . . . made the initial suggestion."

"Ah. And so you—"

"Naturally," said Roberts, standing the battle armor against a bulkhead, "when the symbiotic computer is unhappy, the ship isn't worth living in. I have to extend myself a little now and then to keep the symbiotic computer happy."

Morrissey glanced out into the clearing where the huge dead carcasses were lying around, swallowed hard, and said nothing.

"We'll stay here," said Hammell firmly.

Roberts shrugged exasperatedly. "Suit yourself."

They went up to the spy screen, and as they turned it on, a dazzling flash loomed out through an unfocused scene of grayness and blowing smoke, and when Roberts adjusted the focus, a nightmarish barren landscape came into view, with running figures briefly glimpsed in the distance.

Roberts glanced at the locator screen, and realized that he had a view of the dump they'd watched earlier. He frowned at it for a moment, then said, "Let's see the streets adjoining this."

Morrissey changed the setting, and in quick succession Roberts saw views of four different streets. On all of them, there were overturned roboid policemen, being taken apart by humans using tools apparently improvised from the axles, shafts, and cover plates of other roboid policemen.

On the streets, leading toward the center of the city, little groups of men and boys went past, alternately



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running and walking, carrying guns, short lengths of pipe, and heavy axles sharpened on one end to a needle point. Other groups of men carried buckets and still others carried garbage cans slung on pairs of long pipes.

"Ye gods," said Hammell. "It looks like that first time we tried to do something, and they had a revolution going before the day was over."

Roberts said, "The want-generator hasn't been on overnight, has it?"

Morrissey shook his head. "We couldn't even have started to figure out what to do. We left it turned off."

"Then we don't have that to worry about, at least. Let's follow one of these avenues toward the center of the city."

The scene shifted, up one of the long avenues, to show, at first, scattered gangs of men moving forward out in the open, then men moving single file next to the buildings, then men sprinting across intersections to file through narrow lanes through the trash-filled parks, to emerge opposite the center of the next block, cross the street at a run and disappear through doorways guarded by armed men who stayed flat against the wall and peered warily toward the nearest intersection.

As the scene shifted still farther forward, the alternating checkerboard pattern of buildings and garbage-dump-filled parks was suddenly interrupted. Two-thirds of the way down the next block, the buildings were smashed to rubble, and the dumps were burnt black. A tangled confusion of barbed wire and tetrahedral clusters of razor-sharp needle-pointed blades was shrouded in a foamy mass of solidified translucent bubbles, through which could be dimly seen the glitter of other, finer, wires, of narrow sharp-edged metal strips, and the looming shapes of dark spheres, ovoids, and platelike objects suggestive of explosive mines.

In the street bordering this barrier, armored turrets mounting four guns apiece, in two opposite pairs, were thrust up out of manhole-like openings in the street. Mobile guns were clustered at the corners of the parks. In the avenues farther back long, low, many-wheeled devices waited.

With growing amazement, Roberts, Hammell, and Morrissey watched as they shifted the scene, and the length of this barrier became clear. It stretched on far across the city from west to east, then swung far to the south, then finally west again, with massively fortified squares at the corners.

Hammell said in astonishment, "Two-thirds of the city is outside that barrier."

"At least," said Roberts. As the scene changed, they could see, at the high windows of the smashed buildings outside the barrier, triple-lightning-bolt banners hung out. In



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the dumps, pipes torn out of buildings were thrust deep in the heaps of garbage, with triple-lightning-bolt flags flying from them. Along the edges of the barrier itself, there were flashes of occasional explosions as small parties of men tried to force their way through. Then, apparently, some new command was given. Along the whole length of the enormous barrier, the attempt to break through gradually died out.

After a lengthy silence, Hammell said, "Trying to make something out of this place is like trying to build a house out of hand grenades."

Morrissey nodded. "It was easy to see what they needed before: They were too sunk in the backwash of all the slums they'd been taken from before they were put here. But what do they need *now*?"

Roberts stared off into the distance.

Hammell shook his head. "Where do we even start? Last time, we had an inert mass to work with. This time, we've got something that explodes from one crisis to the next. How did this mess ever come about anyway? I thought we'd improved things—not set up a powder keg."

Roberts, who at least had been sleeping at night, began to dimly see a possible cause of the trouble.

After a moment, he said tentatively, "Every time we've used the want-generator, except at very low power on just the three of us, there's been an *inertia*. Once started, the effect seems to go on, even though we turn off the want-generator itself. We've accepted this as a fact, but we haven't tried to find any mechanism to explain it. What if each individual has, in effect, a slight *want-generator capacity* himself? Suppose that once his desire is aroused, it energizes a *field*, similar to an electric field around a wire. This hypothetical desire-field, once energized, would create, in effect, a force tending to maintain the desire, because any lessening of the desire would cause a flow of energy from the collapsing field to reinforce the desire. The result would be an *inertia of the desire*, once created."

Morrissey blinked. "In that case, there should be induction effects. Once a strong desire is created, it will tend to induce a corresponding desire in others, and there will be something similar to attraction and repulsion, based on these interacting desire-fields."

There was a moment's silence as they thought it over, then Roberts said, "To begin with, to all intents and purposes, these people were *desireless*, or rather, their desires were comparatively few, simple, and predictable. It follows that there would be comparatively few of these interacting desire-fields. What *we* apparently did was to *set up more of these interacting fields.*"

Hammell said, "Of course, this is just a theory."



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"Sure," said Roberts. "But are you under the impression that we were operating without a theory before? We *had* a theory. The theory was that the city, and the people in it, were *passive subjects for the operation of the want-generator.* Granted that when the effect was concentrated on just the three of us, here, it seemed to work that way. But then, the city is much larger, the effect is more widespread and there are far more of what you might call 'natural want-generator units' in the city. Well, we've been acting on the theory that the want-generator operated on a passive object, and the passive object is now running away with the experiment. It looks like time to reconsider the theory."

Hammell thought it over. "You figure we've set up these 'desire-fields' with the want-generator, and now they're in operation, whether we run the want-generator or not?"

"How else do you explain what's going on? It's exactly *as if* such fields were in operation. If so, where do they come from?"

"But look, remember how we hit the whole city with 'desire for achievement'? And how then we discovered that their idea of achievement was to 'kill mechs'? And to stop that, we had to give them a stiff jolt of 'desire to give up'? Then there was an uncontrollable panic, and we gave them a shot of 'desire to fight' to break the panic? That incidentally started a mess of fist fights, and we had to use 'desire to sleep' to end that? Remember?"

"Yes," said Roberts. "I wouldn't be likely to forget that."

"Well, if 'desire to give up' knocked out 'desire for achievement', and if 'desire to fight' knocked out 'desire to give up,' and so on, these hypothetical fields have all been discharged except the last one, which, as I remember, was 'desire to think'. Where's the problem? Where did *this* mess come from?"

"It depends on what you mean when you say the desires were 'knocked out'," said Roberts. "Maybe 'desire to fight' eliminates 'desire to give up'. They're directly opposed to each other. But how does 'desire to think' eliminate 'desire for achievement'? And how do either of them eliminate 'desire to kill Mechs', which these people had to start with?"

Hammell was silent for a moment, then his eyes narrowed in thought. "Yes, I see. One desire may just be *set aside* for a while, as when you tune a receiver to pick up one signal instead of another."

Roberts nodded. "And it seems to me that we've added quite a few signals to those that can be picked up in that city. 'Desire to achieve' seems to be operating, and in practice it's still interpreted the same way: 'Kill mechs'. This affects 'desire to learn', which is interpreted as 'desire to learn how to kill



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mechs'. And then, 'desire to work' seems to be in operation, since, for instance, the improvised tools and weapons take work. But that desire manifests as 'desire to work at killing mechs' And it's obvious that for all this to happen so fast, 'desire to think' must have been operating, no doubt in the form of 'desire to think how to kill mechs'. Every desire we've added has apparently been brought to serve that one dominating desire that they had before we started, namely, 'Kill the lousy mechs'. Thanks to that, they've got a fair chance to blow up the planetary computer and smash every machine that serves it."

"Yes," said Hammell. "And once they succeed in that, there'll be mass starvation here, because the computer and a few technicians run the mechanized farms through roboid machinery. Once they destroy the computer they land right back in a bare subsistence, dog-eat-dog setup."

"Speaking of technicians," said Roberts, frowning, "have you noticed these different kinds of specialized machines that weren't here before? Did that computer program itself to make them. Or—"

Morrissey had been experimentally changing the view on the screen, and now cleared his throat. "While you theoreticians have been groping for conclusions by pure deduction, I've got hold of some facts. Take a look at this."

Roberts and Hammell glanced at the screen, to see a tall gray-haired man wearing dark-blue clothing of good material and narrow cut, who was standing before a wall-size screen showing a roughly rectangular section of fortified city, with square bastions at the corners.

Beside him stood a burly giant with bristling red beard, who said angrily, "Damn it, Kelty, they'll tunnel. Right this minute, a dozen teams of shovel-gangs are digging under your fortified line."

Hammell stared at the red-bearded giant. "*That's* one of the technicians!"

Roberts ran his hand over his face. The last time they'd been here, Kelty, second-in-command of the city's huge police force, had told Roberts that the bulk of the technicians had left the city. Moreover, Kelty said, there was an implacable enmity between the bulk of the technicians and the computer, and hence no chance of the technicians returning to the city. So, how—

From somewhere in the ship came an odd creaking gritting noise, but Roberts was too preoccupied to pay any attention to it.

Morrissey said, "I suppose if anything could make that planetary computer give concessions to get the technicians back, this is it."

On the spy screen, Kelty was now saying, ". . . Very true. Right this minute, they're tunneling. But eventually, they'll have to come up, or come out in another tunnel, that



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*we* control. And when they do—"

"No, they *won't* have to come out. That's the point. They can dig from that fortified line of yours, right under one of the power mains, all the way to Center, and with a little luck they can then blow the computer itself right off the map."

"*If*," said Kelty, "they don't lose their following first."

"How?"

"This tunnel will take a long time to dig. A lot of food will be consumed in that time. They don't have it *to* consume. The stores outside the line have only so much, and no more is going to them. Without food, the fanatics will lose their grip on the populace. They'll be forced to give up."

The red-bearded giant shook his head. "Maybe we can starve the *other* eighty or ninety percent of the populace into submission, but not that crew. They're a bunch of fanatics, led by a fanatic to end all fanatics. They'll dig till they don't have the strength to lift a pick. And all they need to do to maintain their strength is to take the lion's share of the food for themselves."

"The point," said Kelty, "is in this other eighty or ninety percent of the populace you speak of. What will they do *when they don't get food?*"

The giant snorted. "Raid the remaining food stores, steal from each other, run around screaming till they're out of strength. Don't kid yourself that they'll attack the fanatics' Leader. *He's* got ninety percent of the men with weapons. The best the rest of them will do is to knock off a few stragglers and isolated guards here and there to relieve their feelings. Meanwhile, the fanatics and their work-gangs will tunnel. When the computer blows up, you and I and the rest of us will have no choice but to get out somewhere beyond the forest, and I can tell you from experience that that's no fun. But it's better than starving, which is what will happen to us if we're back here once the computer is gone."

Kelty's face had the look of a man forcing himself to consider unwelcome facts. He turned away, then suddenly turned back again.

"What's your idea?"

"We're producing some items of machinery I haven't mentioned before."

"Namely?"

"I've got three oversize trenchers in process, and the largest is almost finished. These are step-trenchers. The first makes a trench big enough for a canal. The second rides in the bottom of that and sends its dirt up on a conveyor. The third rides in the bottom of *that* trench and makes a deep cleft like a glacial crevasse. Let the fanatics try to tunnel across *that*. For good insurance, we can drop projectors of some good heavy gas in there, and when their tunnel comes through the wall of the trench down below, the gas will go to work on them."



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Kelty looked horrified. "That's too hor . . ."

"It will *work*."

Kelty shook his head. "A trench like that would cut every power and water main from Center out."

"We can stop the flow from the cut mains. We've . . ."

"I don't mean that. This will cut off their water supply."

"Let it. We'll still be alive afterward, and we'll have the wherewithal to put the whole place back together again."

"Do you have some way to put millions of dead men back together? The minute you cut those mains, you sign the death-warrant for three-quarters of the human population of this planet."

"The minute you let the Great Leader blow up the computer, you sign the death-warrant for ninety-nine percent of the human population of this planet."

Kelty hesitated. "Suppose we cut off the water in the mains from here? Just shut the main valves?"

"Now you're grasping at straws. Their leader thought of that before we did. He's already got gangs of men doing nothing but carrying up buckets and waterproofed trash cans filled with water. A deep trench is what we need, to cut their tunnels. Shutting off the water from here won't do it."

Kelty shook his head wearily. "These trenchers of yours *will* cut through the mains? Won't they break down?"

"They'll chew right through them. *That* part's no problem. What we need is your approval, so we don't waste any time. When you're dealing with fanatics, you can't afford to give them any advantage, and we don't want them to get a minute's lead on us."

"But it's my job in a situation like this to *restore order with a minimum loss of life.*"

"That's exactly what I'm talking about. You spend a winter out with us in that forest, and you'll run into situations that make this seem easy by contrast. All *you* have to do is *stop those fanatics*, and the best-skilled, most cooperative section of the populace *lives*. This is horrible in its way"—the giant shrugged—"but what do you expect? This way, you get to save the sources of power, the skills, and the organization, to hold back what you might call the wild forces of this planet. Do you know what it's like to fight the elements and the beasts and insects of this so-called Paradise *with no technology? That's* the problem, Kelty. To save *humanity plus technology.*"

Kelty, his face pale and shaken, said, "How long before this first big trencher of yours is ready?"

"Not long. About three hours."

"I'll think it over."

"The sooner we get started with it, the better."

"All right. I'll think it over."

Roberts glanced at Morrissey. "Is



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there any way we can possibly find this chief fanatic they call the Great Leader?"

Morrissey shook his head. "So far as I can see, only by pure luck. He's almost sure to be in one of those tunnels, and since the city's surveillance system doesn't cover the tunnels, the screen won't either. How do we find him?"

"Yes. That's no solution."

From somewhere in the ship came a creaking noise that momentarily caught Roberts' attention, but then he saw what was happening on the screen. The red-bearded technician had left the room, and Kelty had crossed to a kind of typewriter keyboard set out from the wall. His hands flashed over it in a blur. After only a moment's delay, the wall lit up in several lines of green letters:

PLAN FEASIBLE.

LONG-RANGE COST ACCEPTABLE.

PLAN IS APPROVED.

Now that it was too late, it suddenly came to Roberts that the crisis might have been delayed by using the want-generator on Kelty; but now the computer had accepted the plan, and the want-generator could no more influence the computer than a bee could intimidate a sledgehammer.

Hammell said, "Wait— Why not hit the whole city with an overpowering jolt of 'desire for peace'? Just pour it on, and *end* this!"

Morrissey's face cleared. "Why didn't we think of that sooner?" He set up "desire for peace" on the want-generator, and turned it on.

Roberts, Hammell, and Morrissey waited tensely to see what would happen.

Somewhere, there was a grinding crunching noise.

Roberts looked around curiously, then a flash of movement on the screen caught his attention.

A number of hard-looking individuals were walking out of doorways and climbing out of trenches in the garbage dumps. They tossed their guns aside, and waving their hands over their head, shouted "Let's be friends!" and walked out toward the burnt bare no-man's-land and its wire barrier.

The roboid police devices waited until the men were well out in the open. Then they opened fire, and shot the men down.

More men came forward behind them, shouting, "We want peace!"

The roboid devices cut them down with automatic efficiency.

Still more came forward.

"Shut it off!" said Roberts.

The roboid devices waited for a better shot, and suddenly the target vanished in flying dives into the nearest gutter, through cellar windows, and behind heaps of trash.

The three men stared at the screen and the unmoving bodies.

"Well," said Morrissey in a dull voice, *"that* sure didn't work."

Hammell said shakily, "Suppose we hit Kelty with an extra-strong



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dose of 'desire for peace'? He could call off the police, couldn't he?"

Roberts thought a moment, then shook his head. "If the computer is in its right mind, so to speak, it will sack Kelty if he tries that. The fanatics have apparently booby-trapped the roboid police so many times that any call for peace will ring false to it—like the woman with her 'baby', but on a larger scale."

"Damn it," said Hammell, "we can't influence the *computer*. The thing has no emotions *to* influence."

Roberts was frowning. "There's a thought."

"What do you mean?" said Hammell.

Roberts glanced out the porthole, which was nearer Hammell than himself, at the patrol ship. "It just occurred to me that if the want-generator won't influence the computer, maybe we've got something else here that *will*."

"We have?" Hammell turned around, looked out, and froze.

"There are advantages," said Roberts, "to having something a little stronger than a space yacht. We . . . what's the matter?"

Hammell drew in a slow deep breath.

"Have you been hearing a funny gritting noise lately?"

"Now that you mention it," said Roberts. "I have. But every time I've heard it, something else has come up. Why?"

"Ease over here a little, and look outside from a different angle. Don't make any fast move, or the thing may jerk back and hurt the ship."

Frowning, Roberts carefully eased over toward Hammell—to look directly into the cold calculating gaze of a pair of snaky eyes as big as his fists. The thing had a pointed head large enough at the thickest to wrap both arms around and just clasp hands. Roberts at once recognized the creature. This was the thing that had been looking down at him earlier from the trees. Apparently it had coiled itself around the ship to climb up this high, and the pressure of its coils had created the creaking noise.

Roberts carefully glanced aside, at his battle armor. Probably the best thing to do was to get into that, go out, and—

Hammell sitting as if paralyzed, murmured. "Oh, oh. Look—"

*CRACK!*

The porthole, transparent plate, frame, gasket, rims, and all smashed inward and clattered and bounced on the deck.

The big head was right there in the ship beside them, looking at them and the want-generator coldly.

Somewhere there was a creaking grating noise. The head flowed in farther on its dark-green muscular neck.

Roberts, half-paralyzed, began to have the illusion that he was dreaming. This *couldn't* be real. With an



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effort, he forced his mind to face the facts.

For him to try to quickly reach the battle armor now would only get the snake's attention. *Any* sudden motion was a form of suicide. Yet, to stay still promised the same result after a slight delay.

Very gradually, he began to ease toward the armor. Then he began to wonder, how was he going to go through the awkward process of getting into the armor with the snake looking on?

Meanwhile, the snake was feeding another length of coil in steadily; but abruptly it froze, looking back past Roberts.

It dawned on Roberts that the snake had just spotted the battle armor standing against the wall. Its attention intensely riveted, the snake hung motionless.

Roberts barely murmured.

"Morrissey."

"Sir?"

"Turn on 'desire for peace'. Focus it on the yacht here."

Morrissey, moving with slow careful motions, refocused the want-generator.

Roberts warily turned, very slowly, to look around.

A sleepy film suddenly seemed to come down over the snake's eyes.

At the same moment, Roberts felt an intense yearning for peace and quiet. *Enough* of conflict. "For heaven's sake," the thought went through his mind, "why can't everyone get along together?"

The snake was moving carefully, its huge head lowered and somehow suggestive of a dog expecting a kick. With increasing speed, the length of neck went out the hole in the ship, followed by the head.

There was a grating, grinding, scraping noise, and Roberts cautiously put his head out, to see the creature drop free at the base of the ship and rapidly head for cover.

Roberts sucked in a deep breath, and glanced around.

"Morrissey?"

"Sir?"

"Is there a timer in that circuit?"

"Yes, sir."

"Set it for a minute, and give us a stiff jolt of 'desire for sleep'."

Morrissey bent briefly at the controls.

Roberts suddenly realized that he was worn out, dazed. The room spun around him, and he sat down, cradled his head on his arms, sagged against the control panel . . .

. . . Somewhere, tinnily, a bell was ringing, and Roberts dazedly sat up. He felt as if he had been dredged up from a hundred fathoms down, but he was amazed at the way his desire for sleep evaporated. Now he felt rested, refreshed, and—

Suddenly he remembered something, and sprang to the porthole.

Outside, the huge snake lay motionless, half in and half out of the forest.

Hammell and Morrissey were both face down on the control



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panel. As the timer's bell rang on, only Morrissey was even beginning to stir.

The alarm kept ringing, and now Morrissey groped around dazedly but couldn't seem to connect with it.

Naturally, Roberts thought. He glanced around sourly. After a night spent in this bucket, who *wouldn't* be worn out? Every time you turned around, some monster was coming in after you. Why not just live in a cheesecloth tent, and get it over with quick?

Morrissey finally found the timer, shut it off, and passed out again.

So far, Hammell hadn't even moved.

Roberts grunted in disgust, looked back out into the clearing, and decided the snake mustn't have spent a very restful night, either. It lay on the ground like a felled tree.

Roberts leaned out farther, to see what damage it might have done to the yacht in climbing up it, and at once he heard a rustle overhead, and felt the heat of the sun, shining down on his neck, abruptly cut off.

There was a dazzle of light.

*WHAP!*

Roberts was inside so fast that he knocked Hammell half out of his chair, and himself landed in a sprawl over the edge of the want-generator's control panel.

The air outside the porthole was suddenly filled with huge blue and green feathers. There was a sizzling noise, a smell of cooked meat and burnt pinfeathers, a kind of low popping sound, and a burnt-paint smell.

Cautiously, Roberts looked out, to see one of the smaller turrets on the patrol ship swinging back into position.

Just what caused it, Roberts didn't know, but there was something about the patrol ship as he looked at it that suggested reproach.

Roberts eased farther back and looked around. Morrissey and Hammell—despite the fact that he'd almost been knocked flat—were still asleep. Roberts glanced at the patrol ship. How had it—

That thought was drowned out as it began by a crackling noise, and the boom of a loudspeaker close by:

"YOUR FULL ATTENTION, PLEASE. THIS VESSEL IS FULLY PROTECTED BY APPROPRIATE DEVICES OF THE ADVANCED SYNODICS PRODUCTS CORPORATION. IT WILL RETALIATE AUTOMATICALLY AGAINST ANY AGGRESSIVE OR HOSTILE ACTION."

Hammell was immediately on his feet. Morrissey lurched out of his chair and looked stuporously around.

"The *snake!*" said Hammell. "Where—"

"It's right down below," said Roberts, "and it's just started to move. This warning system you've got here just *woke it up.*"



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Morrisey looked blankly at the want-generator.

"Then—"

"Then," said Roberts, "it follows that the snake, at least, is affected by the want-generator. The last time we were here, we used a 'desire to help out' field to persuade the technicians to trade with us on a fair basis. The instant that field was shut off, there was an uproar out in the forest. It occurred to me at the time that there might be a bunch of predators out there being obliging to their prey."

Hammell glanced at the hole in the side of the ship. "That knowledge may just get us some sleep tonight. But we're *still* stuck with the problem of what to do about this city. The want-generator may affect the wild animals, but it still doesn't affect that computer."

"No," said Roberts, "but something we can do *may* affect the computer. I was thinking of doing it with the patrol ship alone, but this snake suggests new possibilities."

Hammell glanced uneasily out into the clearing. "What were you thinking of?"

"Well," said Roberts, "the immediate problem here is that the fanatics and the computer are opposed. Either one, if successful, can destroy the other. The enmity has to be gotten around somehow inside of three hours or so, or we are right on the edge of a crisis that can mean the death of millions of people."

"Yes," said Hammell, "I see the *problem*. But where's the *solution?*"

Roberts said, "Why do we get unexpected reactions from the people in the city when we beam desires at them? Isn't it because *their thought processes are different?*"

"Sure," said Hammell exasperatedly. "But how do we—"

"We have to affect, not only the emotions, but the thought processes, too. The want-generator affects only the emotions. *We've got to reach their minds.*"

Morrissey looked puzzled.

Hammell said, "I can see, with the guns on that patrol ship of yours, that you can reach their *bodies*. But how you get at their *minds*—"

"When you and your brother," said Roberts, "are about to shoot each other, it really breaks up the family quarrel fast if you find some outsider waiting around to shoot the survivor."

"Yeah," said Hammell, frowning, "that's a point. You mean, we make ourselves the villains, in order to unite them?"

"Once we're the villains, will they listen to us?"

Hammell looked momentarily foolish. "Then how *do* we do it?"

"Obviously, somebody *else* has to be the villain."

"*Who*? There are only the three of us."

Roberts thought a moment. "How's 'Oggbad' sound?"

Morrissey said blankly, "Who in space is Oggbad?"



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"If we're going to have a villain," said Roberts, "I fail to see why any of *us* has to be stuck with the job. Let Oggbad do it."

"Who's Oggbad?" said Morrissey.

"Do *what?*" said Hammell.

Roberts said, "Amongst other things, attack the city. Can you think of any better way to get our advice listened to than by a demonstration of what the fiend Oggbad is up to?"

Morrissey looked at Hammell. "Have we missed this much sleep?"

Hammell shook his head. "We can follow it this far: a) The city is divided into two warring factions. b) We've got to unite them to straighten out the mess. c) An outside menace is the best way to unite them. d) *We* don't want to play the part of this outside menace ourselves, because that would debar us from taking any direct part in the situation. e) Therefore, somebody *else* should do it—I suppose Oggbad is as good as anybody; but, in the first place, where do we get Oggbad? And how do we provide Oggbad with an army to attack the city? And, just incidentally, that computer may be stupid in dealing with people, but that doesn't mean it can't check facts. We've got to convince *both* sides. How do we outwit the computer? And best of all, how do we do all this in three hours or less?"

Roberts said patiently, "With a decent night's sleep, all this should be obvious. Who says we've got to have a *real* villain? A real villain is likely to get out of hand and complicate the situation when you want to simplify it. Oggbad is strictly a fiction of our imagination."

"*Your* imagination," said Hammell.

"But," said Roberts, "Oggbad is to *appear* real, to the city. This he will accomplish by attacking the city."

Morrissey said earnestly, "How does a figment of your imagination attack the city?"

"Take a look out that porthole," said Roberts. "As we should know, there are beasts out in that forest that can create chaos in nothing flat. Do you mean to tell me you don't see how Oggbad can attack the city?"

"But," said Hammell, "to lead the animals— How does he—"

Morrissey gave a sudden start. "Ye gods. We *must* need sleep. We've already seen that the want-generator affects the animals. If that holds true, *we* can control the animals!"

"I don't *mean* that," said Hammell. "How do we *explain,* so it convinces the computer, among others, that this *Oggbad* can influence the animals?"

"Obviously," said Roberts, "the only conceivable ways are for Oggbad to be either a great animal trainer, a great biologist, or a great sorcerer. And if the story is going to have to stand the computer's



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scrutiny, I'm in favor of putting in broad claims right at the beginning, so if the computer is going to choke on it, we find it out immediately."

"Hm-m-m," said Morrissey. "How is the computer, based on science, going to judge a *sorcerer?*"

Hammell said thoughtfully, "There *are* rumors of planets run by . . . ah . . . if not sorcery, something just as good."

"Exactly," said Roberts. "That's what I want to take advantage of."

Morrissey shook his head. "This part starts to make sense to me, but there's a catch. Kelty saw you and Hammell when we were here before. So did the computer's surveillance system. The technicians have seen all three of us. How do we explain that a cargo-ship captain, his cargo-control officer, and his communications officer, are tangled up in a fight with this Oggbad?"

"Frankly," said Roberts, "I'm a little sick of being a cargo-ship captain. I don't think a cargo-ship captain is going to have much impact on them, anyway. If we're going to deal with the city, let's deal with them on nothing less than an equal basis. I'm not interested in going through another dose of what we got the last time."

Hammell nodded, but Morrissey still shook his head. "They've got records of our last visit."

"That won't do them much good," said Roberts, "if every time they see us, we're *inside a suit of battle armor.*"

For the first time, Morrissey smiled. "Yes, that's a point. But how do we explain—"

"If we get things on the right basis to start with, I don't think they're going to *ask* for too many explanations."

Hammell said, "Are you going to say we're investigative officers of some kind?"

"No, because then we have to say what bureau we're working for, and so on. I'm in favor of our appropriating so much rank, right at the start, that it jars them back on their heels, makes them listen when we talk, and makes them hesitate before asking *any* questions. If we're going to get them out of this mess, I fail to see why we have to do it on bended knee. The last time we were here, the animals tried to eat us, the plants tried to smother us, the people threw bottles and chunks of cement at us, and the roboids slapped us in prison. This time, let *them* accommodate themselves to *us*. I don't know what you guys intend to be, but as far as I'm concerned, I aim to get a little satisfaction out of this mess. I'm going to be Vaughan the Terrible, Duke of Trasimere, and I'm on the trail of the evil prince and sorcerer Oggbad the Foul, and if anyone disbelieves or doubts my word, I'll punish his impertinence with a couple of blasts from my fusion guns, *which are real.*"

Hammell grinned. "Between the fantastic story, and the real power,



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it would be possible for the computer to get tied in knots."

Morrissey said, "And there's nothing to prevent our beaming 'desire to believe' at the people. The computer won't be affected, but we should be able to so tie up the computer that it doesn't know what to accept and what to reject."

"That's it," said Roberts.

Hammell said, "Time's passing. This seems to hang together. Let's try it and see what happens."

Morrissey nodded. "Let's get started."

"O.K.," said Roberts.

He got into the battle armor to go back to the patrol ship.

Roberts had intended to make a few slapdash preparations, such as smearing some fresh paint over the Interstellar Patrol identification of the ship—which always showed through any covering he put over it, but the symbiotic computer immediately took a hand.

"Effacing the patrol ship designation without good reason is prohibited."

"I *have* good reason," said Roberts promptly.

"What?" demanded the computer.

Roberts, stupefied at this last-minute delay, gave a quick explanation, and waited angrily for the next piece of obstruction.

"Excellent," said the symbiotic computer. "The plan shows admirable insight into the nature of the problem. However, you evidently have neglected to study your 'Patrol Ship Special Board Number Three—Typical Ship and Equipment Disguises and Physical Aspects of Stratagems.' A demonstration is in order. Press down the blue lever numbered '3' at the left of the control panel."

Roberts hesitated. Beads of sweat popped out on his brow. Then he got control of himself, stopped thinking what the last demonstration had been like, and pushed down blue lever number "3" at the left of the control panel.

At once, there was a hum, and a clank from the weapons lockers where, among other things, the suits of battle armor were stored. From outside came a low whirring noise and a faint sliding sound. Then there was a continuous low rumble, followed by an odd noise Roberts couldn't place. Then the ship lifted.

Roberts waited a moment, then snapped on the outside viewscreen, to see in astonishment that the space yacht was already painted jet black with silver markings, and was now acquiring a set of weird symbols—oddly distorted silver cats, skulls with one red and one blue eye, silver snakes with their gold-colored insides apparently pulled out through their mouths. The sight gave Roberts a nauseous sensation, but he watched as the slender arms with their batteries of nozzles moved over the space yacht while the patrol ship circled it.



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There was a clank and rumble from inside the weapons lockers, then the patrol ship set down again.

Roberts quickly climbed out the hatch, and was startled to see that his whole ship was now gold with a kind of platinum trim. Some kind of dark purple marking was evident farther forward, and Roberts glanced around, walked aft along a horizontal fin, dropped off, and took a look at the ship.

From a short distance, the impression of wealth and power set Roberts back on his heels. No detail of trim had been overlooked, and on the sides of the ship were three complete coats of arms, the center one placed slightly higher than the other two, and surrounded by a kind of bright golden sunburst.

Roberts shook his head, and glanced up at the big hatch of the space yacht, where Hammell was leaning out to stare at the lurid designs on the space yacht.

The two men looked at each other blankly, then Roberts grinned, and called, "Ready?"

Hammell nodded. "How many passes?"

"Two should do it, especially if there's some time in between."

"O.K."

They got back in their ships, lifted off, flew low and fast away from the direction of the city, and then rose high into the sky on the far side of the planet. From very high up, Hammell and Morrissey dove on the city, the speed of their passage creating a crack and rumble that brought people into the streets on both sides of the barrier. A few moments later, Roberts flashed low over the city, the sound of his passage creating an even sharper crack and louder rumble.

The communicator buzzed, and there was a faint click, as if someone had just snapped it on. An authoritative voice said, "Planetary Control Center, Paradise City, Paradise. No flights are authorized, and no landings permit—"

A harsh voice snarled, "Be damned with your authorization. This is the Imperial light cruiser *Droit de Main,* flagship of Search Force IX. Vice Admiral Sir Ian Cudleigh is aboard this ship, in direct service to their Imperial Highnesses, the Dukes of Malafont and Greme, who accompany His Royal and Imperial Highness, Vaughan, Duke of Trasimere, surnamed The Terrible, Prince Contestant to the Throne. You seek to bar our way at your own immediate and deadly peril. Submit at once, or we destroy you and every inhabitant of this place. We are on a business of holy vengeance, and you stand warned. Master of the Ordnance! Give them a taste of our steel!"

Roberts sat wide-eyed and half-paralyzed. As thick as he had intended to lay it on, this beat anything he'd had in mind.

There was a faint clicking from somewhere forward, and on the



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outside viewscreen, two buildings, one inside and one outside the foam-covered barrier of wire and mines, erupted in sheets of flame and smoke.

The harsh voice wasted scarcely a second. "Enough! Stand ready if this place lies servile to the fiend . . . All right, you, which is it? Oggbad, or Vaughan?"

There was a brief buzz from the receiver, then, "Vaughan."

"So be it. Now, know you that their Imperial Highnesses are locked in mortal combat with Oggbad the Traitor. Know you that Oggbad, though shorn of his material power, still sways mighty forces in the realms of sorcery. Only if his soul be cleaved from his body, and chained for its ten million years of punishment in the nether regions, will the blight be ended. Know, then, that as this condition is as yet unmet, and as you serve the Duke Vaughan, Oggbad may seek to smite you. Now, listen closely. If, under fear of the traitor's evil power, you recant to Oggbad, Duke Vaughan with fire and sword will smite you to the death. If, mayhap, under influence of the fiend's sorcery, you are bound over mindless into his evil cause, Duke Vaughan will then faithfully seek to cleanse your soul by agony here, before sending you to your reward. These are— *There goes the fiend! Give chase!*"

The scene on the viewscreen flashed backwards, whirled, and for the second time, the patrol ship streaked after the space yacht.

The communicator clicked off. The voice of the symbiotic computer said, "The instruments in the city are now picking up all the signs and indications of a formidable fleet passing the planet."

"Good."

Roberts, streaking along the curve of the planet after the space yacht, was starting to wonder what a patrol ship with fully-trained crew would be like. What had happened so far was apparently mere routine, as far as the symbiotic computer was concerned.

Then he was swinging the patrol ship low over the forest, and following the space yacht in a wide curve to a landing in the clearing. He extended the stabilizer feet, snapped off the gravitors, and got up.

He yanked open the weapons locker, to get out the battle armor, and a glittering suit of armor with helmet curving up into a slender spire came out on its sling. The breastplate of this suit was covered with a dazzling coat of arms. The big fusion gun that hung on the right side was matched on the left by a broadsword. Tied to the top of the helmet's spire was a thing like a pink silk handkerchief.

Looking closely, Roberts could see that his armor was essentially the same as what he'd been wearing before. But the effect was very different.

He wasted a moment asking him-



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self how that had been done. Was there some kind of metal-working equipment recessed into the hull behind the weapons locker? How—

The voice of the symbiotic computer spoke dryly: "In a crisis, each minute is a precious jewel."

Roberts swore, got into the armor hurriedly, and started for the hatch. On the way, the sword banged around and got crosswise of his legs. He'd barely recovered his balance when he straightened up and rammed the helmet's spire into the ceiling. There was a sarcastic throat-clearing noise in the earphones, but the symbiotic computer didn't actually say anything: the cause of this trouble was its own fault.

Roberts finally managed to get the hatch open despite the spire, heaved himself out, and crossed to the space yacht, where Morrissey and Hammell looked up from the spy screen to stare at him in amazement.

"Not my idea," said Roberts, getting out of the armor. "This idea belongs to the computer. What's going on in the city?"

Morrissey said, "I've been watching this screen since we started, and as nearly as I can tell, the people generally are scared, and subject to all kinds of rumors. The general impression seems to be that the planetary computer got a spaceship up, and the Great Leader is up there fighting it in one of his own. As for the fanatics themselves, the more rank they have, the more uncertain they seem to be; but again, so far as I've been able to find out, the top ones are still out of sight."

"That makes it nice," said Roberts, trying to tilt the armor against the wall. The needlelike tip of the spire, even though it rested at a shallow angle against the wall, looked as if it just might push a hole through the hull. Exasperated, Roberts tilted the armor away from the wall, and tried to ease it down on the deck. At the last moment, it got away from him, and hit with a heavy thud.

Hammell and Morrissey jumped and looked around. Roberts straightened up carefully, "This thing sure isn't made of feathers. And watch out for the spike on the helmet. I don't know what kind of metal it is, but it doesn't give, and it's got a point like a needle."

Hammell and Morrissey acknowledged the warning with bare grunts, and immediately turned back to the screen. Roberts, uneasily conscious what ship he was in, looked around at the porthole to find it temporarily repaired with an airtight double-plate-and-gasket screwtight seal. Satisfied that nothing was going to come in there, Roberts slid into his chair, and immediately saw, on the screen, Kelty and the red-bearded technician.

"Nuts," the technician was saying. "There isn't any such place. You've been sold a bill of goods. The whole—"



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"Shut up for a minute," said Kelty, "and see for yourself. We got the whole thing down as it happened. Look at this." He tapped one of several buttons on the edge of his desk, and the far wall of the room suddenly was like blue sky, across which a black-and-silver ship, weirdly decorated, streaked erratically into view, followed a moment later by a dazzling golden ship that unleashed searing bolts of energy that missed the black-and-silver ship by the narrowest of margins. The golden ship was suddenly enormously magnified, to fill the wall. The details of its trim and armament stood out clearly, the coat of arms thoroughly detailed and distinct, the center coat of arms raised above the others and set off in a blaze of bright gold trim.

Kelty said, "A bill of goods, huh? Are you going to tell me the Great Leader dreamed this up?"

The technician looked dazzled. "Still, I never heard of—"

"Wait," said Kelty. "The computer's air-traffic-control circuit ordered the ship off. Here's what happened." He touched a second button. The wall blanked.

A voice said authoritatively, "Planetary Control Center, Paradise City, Paradise. No flights are authorized, and no landing permit has—"

The wall flared with color, and a hard face, eyes narrowed, scarred below the left eye and across the bridge of the nose, appeared against an unfocused background, to snarl, "Be damned with your authorization. This is the Imperial light cruiser *Droit de Main,* flagship of Search Force IX. Vice Admiral Sir Ian Cudleigh is aboard this ship . . ."

The red-bearded technician stared at the screen, where the tough figure suddenly turned aside:

"Master of the Ordnance! Give them a taste of our steel!"

Kelty hit another button, and the wall lit with a view of buildings exploding in sheets of flame and smoke.

At the end, Kelty turned to the technician. "Then the first ship showed again, and the two ships went out of view, and the long-range pickups started feeding in more data. *There's a fleet out there.*"

The technician, obviously shaken, stared at the blank wall. "Where does this leave us?"

"You tell me. The computer had to make a quick choice which side to be on, and it must have only taken one-tenth of one percent of its circuits to decide that. There wasn't much choice, if you know what I mean."

"But where in space did these—"

There was a jarring buzz. A voice said urgently, "Now receiving."

The wall lit up again. A very pale face, marked by dissipation but with intense dark eyes, looked out under a narrow golden crown.

"I see you not. To whom do I speak?"



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"This is the Planetary Control Center, Paradise City, Para—"

"Listen closely. It is I, Oggbad, Prince of the Empire, Premier Peer of the Kingdom, High Master of the Unseen Realms. I require your immediate aid to repulse the treasonous assaults of the low villains, Vaughan, Percy, and Ewald. Yield at once to my command or come under ban of the most hideous punishment. How say you?"

There were several buzzing sounds of varying pitch, then the words, "Owing to a lack of sufficient data—"

"Bah! These are the words of poltroons, or traitors! I am Oggbad! *Yield!*"

There was a total silence, then, "Very well! You think the material power of the traitor Vaughan will protect you. I say it will not! Nay, if the fools hound me throughout the length of the universe, and drive me from sun to sun, and destroy the last remnant of my worldly power, still, I am Oggbad! In the unseen realms, guns count for nought. All is unchanged, and I am still High Master of the Unseen Realms. As an earnest of my intent, and a warning to those who believe matter can of a right rule the universe, I shall inspirit the very animals with a hate of your treason, and hurl the might of the forest against you. Nay, I say, yield, or face the most dread powers of the Unseen Realms!"

The computer could manage nothing but a buzz.

"So be it," said the pale dissipated face looking at them from the wall, its dark eyes blazing. "You anger me. And though I be shorn of material power you will soon learn the might of my dominion. I *will* regain a footing for my power! And as I am here, *you* will serve, or I will destroy you. Bear my words closely in mind."

The wall went blank. Kelty stared at it dazedly. The technician passed a hand across his eyes.

Finally, Kelty said, "All right. But we're on the right side, at least. That last business was lunacy. That's—"

There was another jarring buzz. "Now receiving."

Kelty and the technician winced and turned back toward the wall. The wall lit up with a view of the same scarred tough face they'd seen first. This face now had a thoughtful exasperated look.

"The fiend has slipped away. No cloak of invisibility could hide so large a ship from our instruments, but there it is. He is gone. Trouble is on foot again. But he'll not leave this world alive. Well, so be it. I speak now to the Earldom—Designate of Paradise, so-called. *Answer!*"

The computer gave another buzz. "We are listening."

"Why have you a voice but no face?"

"Owing to technical difficulties."

"Be damned with technical difficulties! On all we know, Oggbad is



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still alive! Listen closely. As you have yielded to His Royal and Imperial Highness, Vaughan, Duke of Trasimere, Prince Contestant to the Throne, on the truth of whose cause the light of Heaven shines, so are you in duty bound to obey him. You are now a part of the Empire, in immediate fiefdom to Duke Vaughan himself. Whosoever denies this, does so on instantaneous peril of his life. Now then, the cursed Oggbad is loose on the planet. You must set your defenses in order. Mischief is afoot, and on such a scale as you may never have seen before. But fear not. Duke Vaughan is here. His material power is no small weight against the invisible might of Oggbad. Oggbad must first ensheathe his strength in material form to act in the visible realms. The Duke Vaughan's power is already on rein to act. And we are quick, ready, and hold our minds to the task—we will come through the storm. Oggbad's first onset is the worst. Prepare to meet the Duke Vaughan himself within the hour. There is no time to waste."

The wall went blank.

Like two punchdrunk fighters, Kelty and the red-bearded technician stared at the wall.

Roberts, himself half-dazed, suddenly realized that Kelty and the technician, probably the two most important humans in the computer-run part of the city, were now stuck on dead center. The slightest push would move them in either direction.

"Quick!" said Roberts. "Hit Kelty with 'desire to inform, explain, and expound'! Easy at first, then if he does what he should, step it up. We want the rest of the city to know what's going on."

On the screen, Kelty was saying dazedly, "Are we dreaming? How do we *handle* a thing like this?"

The red-bearded technician was starting to grin. "They don't waste any time, do they? Well, well. What does the computer say to *this?*"

"That's a point," said Kelty. He crossed to the keyboard set out from the wall. Almost immediately, the wall lit up in yellow letters:

INSUFFICIENT DATA

Kelty stepped back as if he'd been struck.

The technician nodded. "That's about all we can expect from it. After the crisis is over, *then* it will have the data and the answers."

"Damn it," said Kelty, "we've got to do *something!*" His face cleared. "Yes, we'll let the people know what's going on!"

"What good will that do?"

"Maybe it will give that collection of fanatics something to think about beside blowing up the computer."

"Yes. That's an idea."

Roberts glanced at Morrissey. "O.K. So far so good. But now we have the little problem of providing Oggbad with an army."



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Morrissey said, "I've been thinking about that. It strikes me we're making big promises, and don't know whether we can actually come through with any results."

"If not, they're no worse off in that city than before. And as for us, we can always explain it away by 'capturing' Oggbad, and then having him escape by sorcery as soon as we figure out what to do next. After all, when you've only got three hours to save the lives of millions of people, you can't expect perfection."

"Well, no—" said Morrissey.

"What *might* work," said Roberts, "is to make a kind of large U-shaped pattern of 'desire to escape', and move it slowly forward, from the forest across the cultivated belt toward the city. Can we do that?"

Morrissey nodded. "That's about what I'd planned. What I don't know is whether it will *work*."

"Let's try it. If we can get those behemoths really moving, they should be able to cover that distance pretty fast. Then there's the problem of the city. Unless that symbiotic computer puts its oar in again, what I think we ought to do is for Hammell and me to land near the border between the two parts of the city, while you move the animals along . . ."

"If they move," said Morrissey.

". . . And also pour 'desire to cooperate' at the city's populace. Once we get them into the right frame of mind, we'll wait till the animals arrive, and then there'll be a common enemy. After that, anytime the people start to break into factions, Oggbad will bash them over the head. Meanwhile, we can use the want-generator to pour the right desires at the city, while the situation itself tends to make it certain that these desires are *interpreted the right way*. Once we really get that setup going, we can probably shut off the want-generator entirely, except for emergencies."

"We don't know yet," said Morrissey stubbornly, "if those animals will *move*. I'm going to have to use different intensities of U-shaped regions of 'desire to escape', one region inside the other, to create a kind of fear-gradient, if you know what I mean. The desire to escape has to be strongest at the outermost region, so that the animals will move forward in the right direction, toward the center-line of the U."

"Good." Roberts glanced at Hammell. "Now, unless this Duke Vaughan is going to turn up all alone, probably you'd better come with me."

Hammell nodded without enthusiasm. "I guess so."

"Great," said Morrissey. "And what happens if some tree-sized animal with eight-foot jaws goes after the ship? What do I do then? It takes concentration to work this want-generator and watch the screen to be sure things aren't getting out of hand. I can't do that and fight off a horde of monsters, too."



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"Hm-m-m," said Roberts. "Why not hit them with 'desire to sleep'? It certainly worked on that snake."

Morrissey called: *"Holcombe!"*

"Yes, my lord?"

"The tranquilizers."

"At once, my lord."

"O.K.," said Roberts, heaving the battle armor over on its face so he could get the back plate open, "then *that's* settled. Watch out for the point on this helmet when I get up."

"Listen," said Morrissey, "I keep trying to tell you, these animals *may not move*. Or they may mill around, fight each other, and generally be slow as mud."

"Use 'desire to cooperate' on them in the center of the U. Do the best you can. Just pour on the power and hope for the best. It will be quite a coup for Oggbad if you *can* manage it."

Morrissey said something Roberts didn't quite catch, but then he was inside the armor, and the rest of the comment came across clearly in the earphones: ". . . To be quite an experience. Who got this bright idea, anyway?"

Hammell's voice, somewhat hollow, replied, *"We* did."

"Yeah. Then I guess we're stuck with it. Well, stay healthy."

"I'll try. Watch out for the gangbats. Don't let Oggbad get you."

Roberts, inside the armor, swung shut the back plate, listened critically to the multiple click of the latch, and shoved home the lock lever.

"O.K., let's go. Stick close to me crossing the clearing."

"I sure will," said Hammell.

"And look out for the spike on this helmet."

A few minutes later, Roberts and Hammell were aboard the ship.

And a few minutes after that, they were sweeping out in a wide curve, in order to come back toward the city high up, and from a different direction.

Kelty was apparently acting fast under the influence of "desire to inform, explain, and expound." The patrol ship's symbiotic computer, in the guise of a tough no-nonsense Imperial officer, made arrangements to land, and immediately the buildings nearby were crowded with nervous onlookers.

Roberts and Hammell, taking care not to run each other through with their helmet-spikes, squeezed out the patrol ship's hatch, to face an uneasy-looking Kelty, who was accompanied by a nondescript individual with triple lightning-bolts on his armband, on the sash across his chest, and on the visor of his floppy cap. The place was surrounded with roboid police, who with apparent uneasiness faced the gap blasted in the barrier that last time Roberts had gone by. Through this gap, a number of armed toughs were seeping forward, but the roboid police apparently hesitated to stop them lest they provoke an uproar in the midst of the ceremonies.



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Roberts decided there was no point fooling around. His voice came out amplified into a close resemblance to thunder:

"I am Vaughan of Trasimere. Let all who would serve me kneel. Let all who would serve the traitor Oggbad stand."

Kelty wasted no time kneeling. About fifty percent of the toughs with armbands took a quick glance at the guns on the patrol ship, and at the ruined buildings nearby, and either kneeled or dove for cover. The remaining fifty percent remained upright. The nearest tough, with the largest number of lightning-bolt insignia, gave a peculiar laugh, and a sidewise flick of his right hand. His followers snapped up their guns. One heaved a sharpened axle straight at Roberts.

There was a brief crisscrossing dazzle of white lines from the patrol ship's fusion cannon.

The wind blew away a few puffs of smoke, and all that was left of the immediate opposition was a smoldering armband here, a red-hot piece of metal there, and a scattering of grisly trophies that Roberts tried not to look at.

Giving no time for the stunned silence to turn into a new show of opposition, this time from under cover, Roberts demanded in a voice of thunder, "Who else serves Oggbad the fiend? Know you not that each man of this city will serve his true liege-lord or die? What manner of treachery is this?"

To give emphasis to his words, and because he sensed he might look silly just standing there after this speech, Roberts whipped out his sword. The sword came out with a menacing hiss that carried a long way in the silence. Then, since it would have been ridiculous to threaten the whole city, he took a quick step toward Kelty.

A roboid policeman immediately blocked his way.

Roberts' sword flashed out, sliced the machine in two with one blow, and a hard kick of his right foot knocked the pieces twenty feet away. He gripped Kelty by the shirt front.

"Serve you Oggbad?"

"No! But this has all been so fast. And we have a . . . ah . . . a *rebellion* going on here—"

"A rebellion? *Against me?*"

"No. No. Against the machines." Hastily, Kelty gave an explanation of the situation in the city, at the end of which Roberts shrugged.

"This is no matter. It is of the past. What concerns us now is Oggbad. I accept the submission of that part of the city ruled by the thinking-machine. And by grace of the power invested in me as suzerain create the thinking-machine a Baron of the Duchy of Trasimere. So, too, do I create you, Kelty, a Baron of the Duchy of Trasimere. Let no man raise his hand against your joint authority in the Inner City, by which I so designate that portion of land within this barrier



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of fanged wire and subtle entrapments, upwards to the limits of the aery realm, and downwards to the center of the world. Now, so much for that. We have still this Outer City to deal with. Who rules there? Every minute the power of Oggbad ensheathes itself in matter, and we waste time on this foolery! *Who rules?* Come forward now, or I destroy your power root and branch, thorn, twig, seed, and fruit! Come forth, I say!"

Roberts was becoming aware of an urgent desire to cooperate. If everyone else was feeling it as strongly as he was, the factions in the city wouldn't last long. But how could he cooperate with somebody who didn't show up?

Just then, as he was wondering what to do next, and wishing the symbiotic computer was handling this instead of him, a strongly-built figure about five-feet ten, carrying a rifle in his left hand, strode forward, handed the rifle to one of a small group of followers, and walked toward Roberts unarmed. This man had a look of intelligence and intense self-discipline. When he was directly in front of Roberts, he dropped on one knee.

Roberts said, "You rule in the Outer City?"

"I have five to ten percent of the people behind me. My men are armed. The others aren't."

"Good enough. Do you yield to me, Vaughan of Trasimere—or would you serve the foul traitor Oggbad?"

"I'm for you."

"Then by grace of the power vested in me as suzerain, I create you a Baron of the Duchy of Trasimere, and ruler of the Outer City, by which I designate that portion of the presently-existing city outside this barrier of entrapments and fanged wire, upwards to the limits of the aery realm, and downwards to the center of the world. Let no man raise his hand against you in the Outer City. Rise, Baron. Now, we have no time for the pleasures which should attend these ceremonies, or for their proper form. Each minute spent here the foul cause of Oggbad advances that much further. Dissension within our ranks must be healed at once, as it serves Oggbad's cause. Now then, you, Baron Kelty, and you, the thinking-machine with rank of Baron, and you, Baron of the Outer City, listen close.

"What Oggbad will do, we know not. But he vanished to the west, and from the west will his attack almost certainly come. Therefore, so far as is possible, post your main strength to the west, with but light forces toward the other quarters. And your strength permit it, hold strong reserves in hand. Fight by craft and cunning, from hidden places. Oppose stone walls and empty space to Oggbad's attack, so far as it be possible. Fight him not by main strength. That I will do, as



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my strength surpasses his. Seek to pin him, entangle him. Chisel at his power. When confronted, run, hide, and appear again at his flank. Let his arms fight stone and air, while your sword seeks his belly.

"Oggbad fights by—"

Hammell's voice interrupted. "Your Grace! Look overhead!"

Roberts looked up, to see three huge birds, their feathers blue underneath, winging past. He glanced at Kelty. "Do these birds often fly over the city?"

"Sometimes one alone. I never saw three together before."

Roberts turned toward the ship. "Master of the Ordnance! Bring down those birds!" Roberts turned to his two wide-eyed human Barons. "Their form is but a physical envelope for Oggbad's purpose. Now it begins."

From the ship, a voice called, "Your Highness, this planet must have crystal on it, and Oggbad has found it! The guns are enwrangled!"

Roberts grappled blankly with the word "enwrangled," then turned around, to see the big fusion guns aimed generally toward the birds, but apparently unable to aim precisely. The guns were moving in small circles around their true point of aim, and not one pointed directly at any of the birds.

"Then," said Roberts, thinking fast, "it *is* Oggbad! Well, gentlemen, get your men quickly in hand. Remember, Oggbad's first onset is the worst. I will shield you as best I may, and in the end we will win, because our cause is just. Now, get to cover! *Quick!*"

A terrific desire to fight was building up in Roberts, and, no doubt, in everyone else around. But only Roberts and Hammell knew that the same angry desire they felt was, in all likelihood, shared by the huge birds.

Suddenly, there was a fierce scream from overhead. Roberts looked up, to see the birds draw in their wings. At that same instant, he realized that their camouflage was far better than it seemed. He had seen three birds. But when they began to dive, their green upper feathers came into view, and there were nearly a dozen of them. At once a voice, so like Roberts' own amplified voice that he thought it must be his, roared:

"*Guards!* We'll fight on foot!"

This sounded valiant. It sounded heroic. It just suited the situation, except for one little detail:

There was no one left in the patrol ship.

Hammell already had his sword in one hand and his gun in the other. The patrol ship was already letting off futile bolts at the birds, its "enwrangled" guns doing no damage. So far as Roberts knew, there was nothing left in the ship but a couple of empty suits of battle armor. Meanwhile, from windows and doors, people were looking at him, the birds, and the patrol ship to see what would happen next.



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Roberts, cursing himself, turned back toward the patrol ship, and braced himself to shout another order.

The patrol ship, somehow sunk deeply as if it were digging its way into the cracking concrete, disgorged from its hatch an armed man-sized figure in silver armor. Then another, and another, until there were half-a-dozen of them outside. Since they couldn't be human, they must be roboid, controlled by the symbiotic computer. But where in the cramped interior, with so much space already taken up by guns and missile storage, was there room for the fabricating machinery and the stocks of materials? Was the ship so much more advanced than it seemed? Roberts looked around, hastily gave up trying to find the answer, and roared, *"Have at the fiend!"*

A huge shadow was sweeping over the ground, and now gigantic claws shot toward him. Roberts fired his fusion gun, sheared off one of the clawed feet with a savage stroke of his sword, was grappled and knocked backwards by the other, beheaded the bird, and landed in a tangled bloody mass of bone, sinew, and feathers. He pulled himself free, to find the air suddenly thick with birds of every description, fighting the people and each other. A moment later, carnivorous bats began to arrive, to dive at Roberts' faceplate, bounce off, then cling to his armor, and squeak their teeth grittily over every bump and joint, in the hope of getting through into the flesh underneath.

The city's loudspeaker system was booming, "Take cover! Get to the tunnels! The city is under attack! Get to the tunnels!"

Flying insects were all over the place now. The air was like fog. The screams of the people told of the attacks of every kind of flying pest known to the planet. It dawned on Roberts that Morrissey had been successful beyond their wildest dreams. If they weren't careful, they might exterminate the very population they were trying to save.

Then the onslaught of another gigantic bird knocked Roberts back into the foam-covered entanglement of wires, mines, and sharp-edged strips of metal. Something seemed to snap inside him, and in a terrific outburst of anger, he sliced the bird in half, cut the entangling wires, and settled grimly to the work of slaughter.

He had killed half-a-dozen giant birds, and uncounted numbers of smaller birds and carnivorous gangbats, when Oggbad's main force arrived on the scene.

Huge gray cats, ordinarily daytime creatures, loomed at him out of the gathering dusk. The computer's roboid police, firing from windows and doorways, were suddenly confronted with gigantic beasts with armored bony snouts and tails like giant sledgehammers. Many-legged segmented creatures crawled up the



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sides of buildings, groped around out in the air, vanished within, and reappeared in the tunnels. Enormous snakes grappled with equally enormous armored metal caterpillars, and, as often as not, the snakes crushed or smashed some vital part before the guns of the metal caterpillars could kill the snakes. The street lights came on to light a scene out of a nightmare, a war amongst animals and machines, with no humans in sight but Roberts and Hammell, dripping blood, the golden coating of their armor chipped and dented, but swords and guns in hand and hewing to the task with such savage energy that they seemed to be everywhere at once.

Toward dawn, a powerful amplified voice boomed out:

"The power of the fiend yields to the Duke! The usurper weakens!"

As daylight shone down on the bloody shambles, the same voice roared: "By command of the Duke, clear the tunnels of the enemy! The worst is over!"

By noon, dented roboid maintenance machines were dragging off the bodies of huge creatures in one direction, while towing disabled machines away in the other direction.

Kelty, covered with large and small bandages, beside an equally-bandaged figure with tattered lightning-bolt armband, was in a building along the boundary between the two parts of the city, listening attentively to Roberts, whose armor looked as if it had spent the last thousand years grinding along under a glacier. Roberts wasted no time finishing up the conference with his two subordinates.

"That's how it is," he said. "Now you've experienced it. Oggbad inspirited those beasts, using the arts of the Unseen Realms, and had he been able to calm their mutual distrust, it would have gone ill with us. Next time, he may have learned that lesson. By that time, our strength must encompass a portion of the forest itself, and all of the fields, lest he destroy the food supply. No man can rest easy while the fiend's soul still cleaves to his body. Now, then. My duties do not allow me to oversee the details. Great affairs are afoot in the Empire, and I must see to them. But count on me to come back, to reward the diligent, destroy the faithless, cleanse by agony the souls of those ensnared by Oggbad—and, if possible, surprise the fiend himself when he expects it least."

Kelty glanced at the fanatics' leader, who looked back with the expression of someone tangled up in a legal matter that threatens to go on forever, but who is determined to find a way to somehow warp it around to his own advantage. This fit right in with the atmosphere of the Baron's Council Hall, which was what Roberts had named the building. In this building, there was a mild, but nevertheless



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noticeable, urge to *think*. Since Roberts had been in here, several patrolling guards had turned away uneasily, while others had briefly stepped in with an air of interest. Other parts of the city had other faint, but noticeable, suggestions of a desire to work, a desire to study, to relax, to worship, or to rest. For each place, a slight but definite atmosphere had been created, and was being maintained, by the want-generator. But that didn't mean that it couldn't readily get out of hand, if a person seriously misinterpreted the *purpose* of the desire.

"I *hope*," said Roberts, noting the intensely-calculating look on the faces of his two human companions, "that there will be *no warring among my vassals*. In the Empire, it is our custom to submit such affairs to heavenly judgment. This we do by sending both disputants into the next world. We can get them there, but so far have found no way to get them back again. Now, gentlemen, I must leave for a time. Would that Oggbad were destroyed, but at least his material power and the strength of his coalition are broken. While you hold him here, we must smash the last of his confederates." Roberts stood up. "Good-bye for now, gentlemen. I am sorry to be in such haste. But I'll be back."

Roberts went out to the ship just outside, and, worn-out and half-dazed, and not knowing if he were the Duke Vaughan, or whether Oggbad was real, or what *was* going on, Roberts got back into the patrol ship, managed to get out of his armor without spearing Hammell with the tapering helmet-spike, and lifted off.

The viewscreen showed him that, down below, battered and bandaged tens of thouands were cheering the rising patrol ship.

"Well," said Roberts, sucking in a deep breath, "either they're cheering us, or our departure."

"Our *apparent* departure," said Hammell.

"Correct," said Roberts, starting to feel like himself again.

He swung the ship in a fast steep climb, taking it apparently toward outer space. When he'd gotten up high enough, the symbiotic computer told him that that was enough to enable it to fool the planetary computer into thinking they'd left the planet. Then Roberts came back from a different direction, and headed for the clearing.

"Well," he said, "that gets us past the first crisis, anyway. Now they've got an urgent reason to stick together. The next thing we want to do is to lay down an overall 'desire for order' field in the city, and a 'desire for adventure' field outside. It seems to me there's an interaction between a person's natural desires, and the field impressed by the want-generator. People can only be comfortable when the two are compatible. What we want is for the workers to be in the city, and the warriors



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and hunters to be in the forest. This business of trying to cram different types into the same mold in the same place won't work. Let's have it so that if a man wants out, he can *get* out. But, after he does get out, survival is his problem."

"What you figure," said Hammell, "is that the ones that want to learn will find it possible to study; the ones that want to fight, to conquer something, will be able to do that; the ones that want to work will be able to. And the desire-fields will keep the warriors from raiding the workers, and the teachers from trying to drag the warriors into the classrooms; while the *individual,* if he outlives one desire, is free to settle in another place with a different outlook, so long as his own desire doesn't so conflict with the desire-field there as to make him acutely uncomfortable?"

"That's the general idea," said Roberts. "And if we can do it, it ought to eliminate a lot of need for external controls, allow a good deal of freedom, and bring this place closer to being a paradise than it would ever be with a computer monotonously doling out food, clothing, lodging, and everything else on a ration system, and then insisting that now everyone should be happy. The computer is great for rationalizing the production and distribution of the necessities of life. But it just naturally gets stuck when it leaves *desire* out of its calculations."

"Which," said Hammell, "it naturally does. Human leaders do it themselves. There's nothing quite like desire to wreck *anyone's* calculations. Maybe even ours."

Roberts nodded soberly. "Very possible. Well— We'll see."

Their accumulated leave was almost up when the three men took a final look at the city on the spy screen. The change in the place was noticeable not only in the glazed windows and painted buildings, but in the walk of the people who remained in the city. They no longer had to fear being knocked over the head and robbed for daring to make anything. Those of them who best loved a good knock-down drag-out fight, an ambush, or a raid for plunder, were out beyond the roboid-manned barrier line fighting Oggbad's army. Either they had what it took, and came back with a heavy leather sack of fangs and claws, which the computer—on Duke Vaughan's order, relayed from a distance—would redeem at an impressive price in whatever merchandise or service the victorious warriors might choose—or else they lacked what it took and "went to Oggbad." Those that tended to be warriors mostly with their mouths were in a worse spot yet. The workers invariably asked to see their trophies, while the warriors were becoming adept at spotting them on sight, and would lug them off to the forest just for the fun of it.

"Boy," said Hammell, "what a



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place! And yet, if anyone should go around there now demanding a revolution, he'd get brained."

Roberts nodded. "They don't want to revolt, because their *real* desires have a legitimate outlet. Not just the desires they *ought* to have, but the desires they *do* have. A man who wants steak can get awfully sick of a steady diet of ice cream—even if it's the best ice cream made, and he can't find any fault with it."

Morrissey said moodily, "I hate to leave this place. And I *still* don't trust the head of those fanatics."

Hammell said, "Just among the three of us, it's going to be a little hard to go back to being a cargo-control officer after being His Imperial Highness, Duke Ewald of Greme."

Roberts said, "The first chance we get, after we stock up on some more parts for the want-generator, I think we'd better come back here."

Hammell and Morrissey at once looked up with enthusiasm.

"After all," said Roberts, "from the way things are going, poor Oggbad is going to need help." ■

## *In Times To Come*

Next month's feature yarn is by Harry Harrison; it's a novelette involving Man vs. Alien, with the aid and assistance of one of Man's long-time symbiotes—an animal that Man tamed a long time ago. But it's one which I'm betting you won't think of from the description.

It's highly intelligent, a ferocious and extremely dangerous fighter, and full-grown individuals weigh over one thousand pounds—about as much as a saddle horse. They can outrun a horse on short charges, and are equipped with terrifically deadly saber teeth as much as twelve inches long. Unlike most of Man's symbiotes they're true omnivores; centuries ago they were trained for use in war—and were great at breaking up cavalry charges.

They have a keen sense of smell, and are used in hunting and trailing.

And because people don't realize their true nature—you probably don't recognize that description—and they make wonderful undercover-out-in-the-open agents!

THE EDITOR



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# brass tacks

Dear Mr. Campbell:

After some thirty years of enjoying "Astounding" and "Analog" I am at last chivvied into writing you—by one of your readers. J. L. Harper ('Brass Tacks,' September 1966) has written one of those letters at which one takes a second look, mostly to be reassured that I didn't write it myself. I think Mr. Harper and I may be kindred spirits in many ways: our reading habits and propensities indicate a rather remarkable parallelity over a lengthy period of time.

I, too, find your editorials very interesting and thought-provoking. In fact the only ASF's I have kept from the past have been preserved for their editorial comment. Your September piece on pollution flourished aloft one of my favorites indeed: mankind's extraordinary ability to ignore the essential long enough to weep over the inevitable. Ask any person what are the major problems facing mankind today and you will get as many answers as questions, but nobody seems to get around to thinking about the big problems: What are we going to do; where are we going to go; how shall we survive (sorry Mr. Harper) when we have wrecked our ecology, raped our resources, fouled up the biosphere and abused the hospitality of this planet until we are no longer welcome on it. The time must be coming very near now. I have a horrible feeling that, Christian ethics notwithstanding, men are not one tiny fraction as important as their dogma-boosted egos like to suppose, and that Nature is apt to deal ruthlessly with any species that becomes an unmitigated nuisance to everything around it.

In a few hours time your President is due to land in New Zealand to commence talks with our Premier. I do not have a copy of the agenda, but even at that level I doubt if the subjects discussed will include the preservation of mineral and marine resources, the cessation of slaughtering all beasts not farmed



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and bred for slaughter, strict control of population figures, and worldwide antipollution action; Vietnam, to me, is only an exercise in Pentagonical patience.

The way things are going, we S-F?? fans will one day be able to peep over the barricades of the last square mile of arable land, taking turns sucking at the oxygen bottle, and waving copies of your more provocative editorials, while weakly crying to the fifty billion starvlings without: "We told you so."

Trouble is, I see no sign of the Stop and Think's being given any cosmological preference over the God Will Provide's. Mr. Campbell —have you a sign for us?

W. D. HALL

Tauranga, New Zealand

*Maybe it's all a cosmic experiment to evolve a race that is adapted to Venus' smog-bound atmosphere?*

Dear Mr. Campbell:

In September 1967 California State College at Fullerton will begin offering a formal course in Science Fiction. Would your readers like to help me select the texts? I could, of course, choose the top ten titles from any of your previous polls, but these books do not necessarily give the neophyte a good overview of that phenomenon we call Science Fiction. Hence, I ask for help.

Here are the only criteria:

1. List only *ten* titles.
2. List works with some literary value which present insights into the entire scope of Science Fiction.
3. List works which are IN PRINT.

Send all lists directly to me. I will collate all responses which I receive thirty days after this letter appears, and inform you of the results.

Thank you for your cooperation.

DR. WILLIS E. MCNELLY

Department of English

California State College at Fullerton,

800 N. State College Blvd.

Fullerton, California 92631

*Cooperation from readers requested—and I'll bet he'll need computer analysis of the results!*

Dear Mr. Campbell:

In reference to your editorial appearing in the December issue of Analog entitled "Too Many Chiefs," you made the statement that the British scientists had a false assumption when they believed that the maximum transfer of energy occurs when the impedance of the load matches the impedance of the generator. In other words, for any given resistance in your generator, you achieve maximum transfer of energy when you change the resistance of the load to match it. You, of course, knew this; but you couldn't resist setting a sly trap for your readers. How many fell into it?

I think what the scientists really didn't understand was that a power



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company doesn't want a maximum transfer of energy, they want a maximum transfer of profits.

JOHN A. GREVILLIUS
1802 Kingman
Leavenworth, Kansas

*O.K.—say the postulate was valid. In that case, it was irrelevant to the actual problem—because they got a wrong answer by using it.*

Dear Mr. Campbell:

"A Higher Critic" was one of those little pieces which could well have been hidden away in a Folklore Society bulletin and lost forever. I'm glad it wasn't. However, by the same standards which he applied the author himself is suspect. The surname Robb is derived from one Robert (meaning Bright) of Clan MacFarlane. The clan name is derived from the Gaelic Pharlan (Sea Wave). This Bright son of Sea Wave may take his place with Mannanan MacLir, Dylan and other Celtic sea gods, and even, perhaps, Theseus of Poseidon. Stewart Robb may be a real person, but his ancestor obviously did not exist—

RUTH ROBB HAEFER
1602 Worden Street
Klamath Falls, Oregon 97601

*And Clan Campbell, I understand, derives from the Gaelic "cam boel," meaning "wry mouth." So there's evidence I have some ancestor back there who was a tough guy that had a twisted mouth. But he must have been good at using it—he organized a Clan!*

Dear John:

I conclude from your December editorial that most mathematicians are engineers. I, a mathematician, enjoy presenting a new colleague with the following:

If N is a positive whole number, and d is the number of its divisors, then the product of those divisors is N raised to the power d/2.

(Since there is a simple formula for the number of divisors of a whole number, this makes the calculation of their product an easy mental exercise.

I'm sure that you, with your engineering training, as well as many of your readers, would instantly test the above "theorem" with at least one example. I know that I did upon first learning of it. The point is that nine out of ten mathematicians to whom I have mentioned it have also done so. Behold the engineers!

In rebuttal of a minor point of your editorial, I believe that very few mathematicians are "pure" mathematicians, if by a pure mathematician you mean one who is uninterested—or even opposed—when the subject of "practical application" comes up. Allow me to support this by examples:

In your editorial, you mention the lack of application of group theory. It's not my field, but even so I am aware that it currently has extremely important and fertile applications in such diverse fields as quantum mechanics, crystallogra-



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phy, switching circuits, and organic chemistry.

Moreover, it seems that a "pure" mathematician would be content to invent a purely arbitrary axiom system with undefined terms of zero semantic content, prove a few theorems, publish, and rest on his laurels. Such papers are rarely seen in the journals. Mathematics is the servant of science, and most mathematicians are at least unconsciously aware of this; it is considered "inelegant" or "pointless" to consider problems that are unrelated to questions some present or future physicist, chemist, biologist, or engineer might ask.

Most of the major branches of mathematics are based on an engineer's assumption of what the universe is *really* like—the position of an automobile is a continuous function of time, et cetera.

Nevertheless, all mathematical axioms can't, by definition, be wrong, just inapplicable to certain systems. A shortcoming and strength of mathematics is that no result, however bizarre and astounding, can knock the props from under the whole business. The result might be obtained from a different set of assumptions, or even by use of a different system of logic. And I'm sure that even the engineers wouldn't want to throw out the whole idea of logic; after all, don't they operate on a "do this, and it'll work" system?

You cast aspersions on "mathematical proof" by giving examples where it apparently leads to incorrect conclusions. I submit that this is the fault of the initial assumptions, not the proof; and proof is what mathematics is all about.

Finally, side comments: I am sure that my Calculus I students would be annoyed to learn that they are slaves, but we profs have known this for centuries. I rate "The Elder Gods" as among the ten best SF novels ever written. Are you really Christopher Anvil? My wife says that Analog is getting too gadgety again. Charles Harness is an unusually capable writer; Randall Garrett is very enjoyable; Poul Anderson is my favorite. The story about the "bumblebee can't fly, proved 'mathematically'" is apocryphal. P. A. M. Dirac took a square root and postulated the positron. Maybe mathematics is of some use after all. (Don't abbreviate it "math"; that has another meaning.)

DAVID E. PENNEY
199 Brentwood Drive
Athens, Georgia 30601

*I am essentially in one hundred percent agreement. The thing is, those initial assumptions vary wildly, and defining them is so frequently omitted, and so many theorists neglect to recognize they* are *assumptions. Moreover, the engineer-scientist business is not, of course, a pure-black vs. pure-white problem—and it isn't even a matter of grays. Like a newspaper half-tone pic-*



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*ture, people's personalities are made up of black spots and white spots. A given individual will be pure-black in* this *area—fanatically so—and quite open-minded in others.*

*And it was a senior mathematics professor at a major University who almost exploded at me when I said I wanted to know what group theory was "for."*

Dear Mr. Campbell:

Is there anyone among your friends and acquaintances interested in the development of English language ability for people using English as a second language? I have been dreaming up various methods rather different from those in current use to do this job and some of the gentlemen in ivory towers aren't talking to me any more.

The problem as I see it is that we are playing around with a great deal more than mechanically produced noises, vocabulary frequencies, and linguistic architecture when we fool around with the means of expression. We are gnawing at the cultural foundations of personality and character, in fact the very essence of the individual. Somehow when I try to discuss this sort of thing with the VIP's of the business we end up talking about phonemic environments, phonetic contrasts, and similar subjects irrelevant to this particular discussion.

I am none too articulate in the area in which I am trying to talk because I don't know anything about it except from observation of my students. I just know it's there and very importantly so when cultural differences are as great as they are between Korea and U.S.A. I have a feeling that among those whose minds reach out, and I think you know many such, there is at least one who is articulate on this subject. Who is he? Where is he? Has he written on the subject?

GERTRUDE K. FERRAR

Seoul, Korea

*A major part of the problem is that a language has built into it a basic cultural orientation; it names things as its speakers conceive them to exist. You can't translate "entropy" into Swahili, for instance; it is not merely that Swahili doesn't have the word—Swahili-speakers lack the concept behind the term.*

Dear Mr. Campbell:

Re: Your December editorial.

You made no mention of the reason why the scientists stay in the saddle as explainers and judges of those phenomena which need explanations. The answer is this; the engineers are keeping them there. The lay public, who have the engineer mentality, "It works. Use it," have found satisfaction in the scientific explanations they are given for their questions. In true engineer fashion, they refuse to abandon the technique which works.

I misdoubt if it is not better for people to accept a modern science-



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oriented explanation than trust the hidebound engineer line, "because it happens that way."

JAMES M. SIEBER
303 West Highland Avenue
Phoenix, Arizona

*There is also the old saying that "Those who can, do; those who can't, teach!"*

Dear Mr. Campbell:

Once an undergraduate college education sufficed. Now an advanced degree is a must.

Pursuit of higher education in their fields is a serious problem for scientists who work in remote areas. Persons working in such places have the alternative of quitting their jobs and moving to places where graduate work is available, or of watching youngsters with advanced degrees bypassing them in salary and in responsibility. The former is not good for the country. The latter is not good for the individual.

Due to the interests of national defense and the nature of modern research and development, it is necessary to have high concentrations of scientific personnel scattered throughout the country in small groups, far removed from existing conventional universities in the more populous cities.

I believe that the time is ripe for the establishment of a graduate school serving the needs of these people. What is proposed is a fully accredited graduate school founded and organized for the full-time scientific people and others, small groups of whom may be in isolated areas, who must work full time to support themselves, their families, and their schooling. Existing well-established colleges were founded and are organized for the full-time students, who in most cases do not carry adult responsibilities.

A particular problem of part-time graduate study is the transfer of credits. When one moves beyond the commuting circle of a graduate school, one stands to lose all but a few credits. The new graduate school by operating over a large area would extend the effective commuting circle from less than a hundred miles to several thousand miles.

The new graduate school would differ from present schools in that the students first would be taught how to learn and how to study in their fields. The basic skills so necessary for scholastic success can be raised to a degree now possessed by only a few scholars.

Due to the lapse of time since undergraduate days and the resultant fading of detail, there would be provisions for refresher and review facilities on a continuing basis to raise the students' background to the high degree of perfection absolutely necessary for successful graduate work. Due to the increased time span for this graduate program over that of full-time study, provisions would be made for con-



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tinuing and increasing the knowledge possessed at the time of each course's final exam.

The school could also serve as a laboratory in educational psychology, particular emphasis being placed on improvement of both teaching and learning techniques at the graduate level.

Organization of the new graduate school at this time depends primarily upon interest among potential students. Whether the school is founded now in this country, or in ten years from now in some other area of the world, is of prime importance to all of us. Persons interested in fanning the flame of the proposed new graduate school can do so by indicating their background and their interest in a letter to me at 45410 Cedar Avenue, Lancaster, California.

VALENTINE CHRISTIAN

*The problem is real and serious; any suggestions?*

Dear Mr. Campbell:

I was very interested in your editorial in the December issue, "Secret Science." However, you missed what is, to me, one of the outstanding examples of our government's duplicity in patent matters. Shortly after the last World War, a new electronics firm located on the West Coast developed new circuitry for use in cathode-ray oscilloscopes. However, the government requires that any materials sold to them


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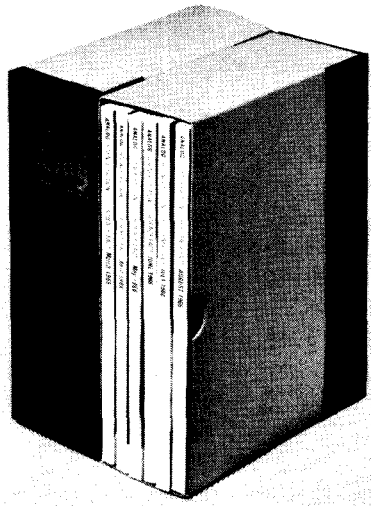




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must come from at least three competitive bids. Since no-one else could build the identical scope, there were no set of bids. To obtain these other bids, several of the smaller companies were contacted and asked to provide bids on this circuitry. Of course, they pointed out to the agency seeking the bids that this would be a case of patent infringement if the contract was awarded and they were to deliver the instruments.

To make a long story short, the government told these "copy artists" to go ahead and "damn the Patents." The case was still in the courts at the last I had heard, but the company with the patents was rather expecting to win their case and perhaps establish a legal precedent, since the government was named as a co-defendant in the suit. If you can find any other information of the progress of this case, I for one, would like to know how the individual rights are stacking up.

RONALD C. ROBINDER
2806 Butner
Durham, N. Carolina 27705

*Maybe Leonard Lockhard can tell us?*

Dear Mr. Campbell:

Been meaning to write you for some time on this. Maybe someone else from Phoenix has already called you on it.

I think it was in the introduction to Analog 4 that you made some crack about how easy it was for the weather men at Phoenix to make correct forecasts practically all the time.

My, my, how far off that is. I have been here twenty years now, and have the distinct impression that they are wrong more often than they are right. Have talked many a time of keeping a running record of their performance, but never get around to it.

Well, anyway, what started me off this time was that the 10:00 p.m. weather forecast Christmas night said no immediate prospect of rain for the next five days. So yesterday morning it started to rain real early, it was raining when we got up, with a little more during the day. A total of 0.4 inch by my rain gauge, which for Phoenix is almost a downpour.

Then they said yesterday it would not clear off until tomorrow, the 28th. So last night was clear, with the first real frost of the season, and I think the lowest temperature we have had—and today has been a nice, sunny day.

HAROLD NEVIN CAREY
2026 North Third Street
Phoenix, Arizona 85004

*Someone at M.I.T. some years ago fed random numbers into a computer operating on a weather-prediction program. The results obtained for the weather during the next three months proved some 16% more accurate than the Boston Weather Bureau predictions.*



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# the reference library

*P. Schuyler Miller*

**MERRIL TIME**

Judith Merril's annual anthologies are no less an event than the "Hugo" awards, or the new SFWA awards. Many readers don't like them; many more protest that her selections are "not science fiction" (she never said they were, except in part); but nobody can ignore them. The new "11th Annual Edition: The Year's Best S-F" (Delacorte Press, New York. 1966. 384 pp. $4.95) may be one of the most controversial for Analog readers, because it has less "hard science" science fiction than ever. But it also has less pure fantasy, and the editor's discussion of the state of the art is better than ever. You would get a far better column if I were to assemble selected quotations than from what I am going to say.

Furthermore, by selecting shorter pieces than usual, Miss Merril has managed to get thirty-six stories, poems and unclassifiable bits into No. 11. To try to characterize them all in the space we have would be ridiculous, so I'll merely talk about them, and about her comments in general.

First off, Miss Merril has cleared the air about the series and what she is trying to do with it. I don't know whether she got her tip from the Oxford club which contributed to our poll last year, or from the British authors whose stories make up a third of the book, but she states point blank that these annuals represent neither science fiction nor science fantasy, but the best and/or most representative *speculative* fiction of the previous year. This statement of policy doesn't really change the nature of the Merril anthologies, but it does open the doors wide and hold them open. If James Joyce's "Ulysses" or "Finnegan's Wake" were to have been published first in 1965, I have no doubt we'd have found a selection in this volume—though that may be an unfair stab, since Miss Merril does seem to be limiting herself to themes that have had a place in old-style "S-F."

Secondly, she has abandoned the "Honorable Mention" list that used to end each volume and scattered comments on other outstanding stories throughout her fuller,



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richer commentary between the selections. I'm all for it. The comments are sometimes better than the stories.

As is characteristic of these annuals, the selections are from all over. Since she is now (I believe) living in England, where speculative fiction is taken seriously rather than tolerated as a minor genre in the entertainment field, future anthologies will be even more varied and will probably include even more stories from non-English sources than in the past. (I wouldn't be surprised to hear that she has gone poly-lingual and started to do her own translating—except that she'd look for a better translation first.) This time, in addition to the new English school—and such veterans as Arthur Clarke, E. C. Tubb and Brian Aldiss—we have "Two Telepathic Letters to Lord Kelvin," written ca. 1911 by the French "pataphysicist" Alfred Jarry but only now translated into English, and "The Circular Ruins" by the Argentine writer, Jorge Luis Borges. Both would be unclassifiable under the old "S-F" definition.

Clarke's "Maelstrom II," in which good, fundamental physics is used to save a man who is about to crash on the Moon, is one of the "hard science" stories, and in the author's best documentary mode. Gordon Dickson's "Warrior," first published here in Analog, demonstrates that "old-fashioned" science fiction can be as good as ever: this is, you may recall, a rather slight episode that rounds out his growing portrait of the Dorsai breed—genetically molded mercenary fighting men. My favorite story in the book is the first, Robert J. Tilley's "Something Else," with its academic jazz buff who finds a monster on a distant world who can bring his rather sterile hobby to life. But the sex surrogates in A.K. Jorgensson's "Coming-of-Age-Day" give a chilling new twist to stories of the population boom—and probably make Philip José Farmer jealous—and the idea of making war an Olympic game in Walter F. Moudy's "The Survivor" is as bitterly effective a commentary on our society and its values as you'll find.

I will take the risk of quoting, fragmentarily and partly out of context, one of the editor's comments on the present situation in the S-F world: meaning here the traditional one as well as the broader one to which she has dedicated herself:

"Just now," Miss Merril says, "there is no . . . center (of the kind that) somehow always accompanies a 'literary quantum jump'—that unpredictable phenomenon that draws in new writers and new readers at the same time, and creates a new level of quality—to meet new critical standards—in its operative area.

"We have the writers; we have the markets; we have the readers. But nothing is happening to bring them together. Much of the best



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work is being done entirely away from the social-professional nexus of 'science fiction.'

"There is no lack of either talent or reader interest. But the combining force is not at work. There are no exchange centers of ideas and criticism. We have had such focal centers in the past (she cites John Campbell and the Astounding of the 1940's, Anthony Boucher and *Fantasy and Science Fiction* in the 1950's, and the start Cele Goldsmith was making with *Amazing* and *Fantastic* for a few years around 1960); my guess is we will have some new ones soon."

And from her summing up at the end of the book:

"The important things happening in American s-f are not happening *in* it at all. We have writers comparable to Ballard in stature, for instance—but not in current achievement, and certainly not in influence within the field.

". . . The stimulus is being provided from outside—and not just from England. It is coming from exciting new work in psychology and the allied sciences; from the avant-gardists and poets who have begun using the images and contexts of s-f with or without concern for the sources; and from the impact of the belated translation and publication of people like Borges and Jarry.

". . . It seems cruelly ironic now to discover that our newest concepts, painfully evolved over a quarter century of speculative interchange from the combined traditions of magic and mathematics, physics and poetry, were already set down—in essays, stories, poems, allegories, sometimes unabashed plot outlines—before we (the present generation of s-f writers) were fairly started on the process, by one man drawing on the whole range of aesthetic/intellectual traditions that have since filtered through to us, from a dozen different sources."

But let Judith Merril complete her argument—her whole argument —herself. Her eleventh annual is her meatiest by far, though only one story was and one or two would have been at home here in Analog.

**SIBYL SUE BLUE**

*By Rosel George Brown • Doubleday & Co., Garden City, N.Y. • 1966 • 183 pp. • $3.95*

Here's a strange one that can't be crammed into anyone's pigeonholes.

In 1990 mankind is exploring space with no useful results and a batch of scaly, somewhat obnoxious humanoids from one of the Centaurus worlds are peddling *benzale*, the next generation's substitute for marihuana, on Earth. Sergeant Sibyl Sue Blue is a policewoman, forty, with a teen-age daughter. Her husband has vanished on the planet Radix some time before. And now some of the *benzale* smokers are being horribly murdered—their livers hacked out and carried off. Presently Sibyl finds that she has also



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become a target for certain Centaurans who attack on sight. She gets one of the cigarettes herself. She is kidnapped and falls for a young billionaire who hauls her off through space to Radix, her lost husband, and the secret of a biological plot to absorb the habitable worlds.

Sibyl Sue Blue is no lenswoman, and she is no paperback stereotype. She likes gin, cigars and sex in about that order and gets all she needs of all three. If you must have a comparison figure, she is somewhere on the conventional side of Modesty Blaise, older, with better sense and a better figure. I hesitate to guess what her relationship may be to Rosel George Brown, who is married to a history professor and has a graduate degree in Greek and two children. I hope we see more of her.

**THE REVOLVING BOY**

*By Gertrude Friedberg • Doubleday & Co., Garden City, N.Y. • 1966 • 191 pp. • $3.95*

Here is a first novel by a writer who was doing successful plays as far back as 1933, and who has written short stories for many leading magazines, including *Fantasy & Science Fiction*. It is a very slight story, so far as traditional SF plots go: there is next to none at all. Yet the basic idea becomes real, and the detail is good.

"Derv Nagy"—his parents once had other names—was born in orbit, weightless. Somehow, the process has given him an absolute orientation in space—a built-in sense of direction that grows as he grows older and becomes compulsive when he is of school age. Whenever he has turned left, he must turn right to "unwind." Later he begins to lean—off plumb—parallel to the unseen, unknown axis with which he is aligned. What action there is in the book deals with the efforts of a teacher, then of his wife, to find out where that axis points—and the radio-telescope at Green Bank, West Virginia, does find a tiny, persistent signal coming from an invisible source in that part of space.

Then the signal stops, and Derv —hiding under another name— collapses, completely disoriented. So the last phase of the story begins. Analog readers, I am afraid, will be miles ahead of what is happening. General readers may be amazed. Give this one to Aunt Minnie.

**MOON OF THREE RINGS**

*By Andre Norton • Viking Press, New York. • 1966. • 316 pp. • $3.75*

A superb wrap-around jacket by Robin Jacques is almost worth the price of this new book in itself. It shows Maelen, Moon-Singer of the ancient Thassa, and beside her the young Free Trader, Krip Vorlund, in the beast-body of a predatory wolf-like *barsk*. Side by side they stare at a castle that blends into the



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crags of the definitely hostile planet Yiktor . . .

But "Moon of Three Rings" is not only the story of why it is that Krip Vorlund has taken refuge in the body of an animal, or how he is going to find his kidnapped body and return to it. Even for an Andre Norton story, there are almost as many interwoven plots as in one of A.E. van Vogt's most intricate tangles. The difference is that they make sense. One of the feudal princelings of Yiktor has a very practical reason for wanting to capture a Free Trader and pry out of him information that will give him the same advantages and powers the off-worlders enjoy. Maelen, one of an ancient race who were the hill-folk of Yiktor long before Earthmen found it, has a mission of her own. Her people, the remaining Thassa, have their traditions and their motives.

This is one of the stories in which Andre Norton embroiders the theme of symbiosis between men and animals in the far future. The Thassa can link themselves telepathically with the intelligent animals who take part in their tent shows and in whose bodies they live and run in exchange. Like T. H. White's Merlin in "The Sword in the Stone," the Thassa know that to be an animal is a vital educational process.

If you think you can't stand this kind of nonsense, try it—or "Judgment on Janus," an even more magical weaving of science and magic—or any of Andre Norton's other books. As an introduction, I recommend the appreciative article by Lin Carter which has been added to the new Ace paperback edition of her "Star Guard" (Ace No. G-599; 50¢), a far more orthodox story than this but just as fascinating. You may disagree with his thesis that this type of story is going to be the dominant one for a next decade or so, but I'd buy the pb for the essay alone.

### CITY OF A THOUSAND SUNS

*By Samuel R. Delany • Ace Books, New York • No. F-322 • 156 pp. • 40¢*

This book concludes the trilogy which the author, in a note at the end, tells us is called "The Fall of the Towers." It was preceded by "Captives of the Flame" (Ace F-199) and "The Towers of Toron" (Ace F-261), and I'd say that all three books should be read together. Perhaps some day a hardback publisher will combine them in one book.

The epic of Toromon unfolds on an Earth of fifteen hundred years or more in our future, when most of the planet has been destroyed by nuclear bombing and fragmentary feudal states survive in livable pockets. All this intricate tapestry of advanced science and decayed society the author has portrayed marvelously well in the earlier



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books, through the intertwining lives of several sets of protagonists. They have found that the kings of Toromon have propped up the crumbling economy and social structure of their pocket empire through a counterfeit war, waged by a gigantic computer. They have also learned that Earth is under attack by an extraterrestrial being, the Lord of the Flame, and is protected by a Triple Being. In this book the struggle is shown as a war between the two, which the Triple Being's agents on Earth must win or lose by themselves.

Like most denouements, "City of a Thousand Suns" is a letdown as a book-in-itself. Too much space and too much plot must be devoted to tying up loose ends, explaining the mysteries of the other books. Read all together, the effect would be less. It's still a grand job, far more effective than most of its kind —even than Andre Norton's more intricate sequences.

**THE SECRET OF SINHARAT/ PEOPLE OF THE TALISMAN**
*By Leigh Brackett • Ace Books, • New York • No. M-101 • 95 + 128 pp. • 45¢*

Way back in the dead, glorious years when science fiction could be anything at all, Leigh Brackett wrote a series of sword-and-blaster stories about swashbuckling adventures on Mars, Venus and other worlds that could never possibly have been, but should have. They owed a lot to Edgar Rice Burroughs and more to C. L. Moore's "Northwest Smith," but were quite unlike both of them. These were also the days when John Campbell, first as "Don A. Stuart" the writer and then as himself, the editor, was forcing science fiction up the unclimbed face of Everest, so we merely glanced at the glorious, sunlit sea of lesser peaks around us and sniffed at the likes of BEMs and babes.

Ace is trying hard to show us the glory of the eternal—and eternally different—hills with its collections from the old days and by ferreting out writers who can see and describe them. Here in one Ace "Double," back to back, are two of the three or so stories Leigh Brackett wrote for *Planet Stories* about her Mars and her superman, Eric John Stark.

In "The Secret of Sinharat" (revised from the 1949 "Queen of the Martian Catacombs"—which sounds like a title concocted by the *Planet* editor) Stark is an outlaw, cornered by the police and given a chance to redeem himself by acting as an undercover agent in a revolt of the Martian desert tribesmen against the comfortable cities of the canals. The bait that draws the tribal leaders is an ancient secret that makes men immortal by transferring the personality of the old into the body of the young. And there is a secret deeper than that for Eric Stark to uncover so that he can save the desert folk, his



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blood brothers, from themselves.

"People of the Talisman" had another typical *Planet Stories* title, "Black Amazon of Mars," in 1951. This time, keeping a promise for a dead friend, he finds himself helping to defend a decaying city against the attack of a woman warrior and the vigorous barbarians of the wastes with whom he would normally be riding. Battle and defeat take him to a lost city near the Martian pole, where a strange alien race has survived through the millennia since Mars was great and green.

Leigh Brackett has written one extremely good "modern" science-fiction novel, "The Long Tomorrow," just to prove she can do that, too. Now, for her sins (and more practical reasons) she writes movie scripts—but *not* science fiction.

### WHAT STRANGE STARS AND SKIES

*By Avram Davidson • Ace Books, New York. • No. F-330. • 188 pp. • 40¢*

One of the disappointments of our recent "best authors" poll was the lack of recognition for Avram Davidson. It is easy to understand why such stylists as J. G. Ballard and "Cordwainer Smith" didn't rank higher, but I can't fathom the failure to appreciate the infinite variety, warm humanity, and seemingly effortless narrative swing of almost any Davidson story. Anthony Boucher is quoted on the cover of this short-story collection as saying: "You know one certain fact about any Davidson story: that it will be unpredictable, unique and delightful." Avram Davidson says it even better in his delightful introduction to the book: "ideas . . . arise in me and (will) not remain still."

There are a dozen choice Davidsonian ideas here, caught by him with their bounce and wriggle undiminished. Corny old ideas shine sleekly; Joe Miller japes turns out to have teeth like a bat. Style matches story, not the reverse.

Some of the stories are fantasies of the unabashed supernatural, like the ghost of an old actor that walks tirelessly in "Faed Out" or the account of strange events in "Mr. Stilwell's Stage." Most extend the boundaries of science fiction.

The opener and title story is several things. It is a parody of a Sherlock Holmes pastiche as written by H. P. Lovecraft, in which a Thing From the Stars takes a Lady Bountiful from Holmes' London. If we had never read Doyle or Lovecraft, it would make them both necessary. "The Bounty Hunter" is a short tale with a telegraphed twist that is somehow welcome when it arrives. "The Ogre" is a wholly original version of a story that I have written, and Sprague de Camp has, and so have others—the surviving Neanderthaler—which also manages to be a happily malicious (bad word: Avram can't be malicious) portrait of a scientific archetype. "Fair Trade" is the one failure in the lot



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. . . in fact, Avram did it far better himself in a glorious story about wooden Indians.

"Love Called This Thing," in spite of its title, in spite of the way it's told, is *not* a humorous story. "The Lineaments of Gratified Desire" is a tiny, shining gem with the taste of Bitter Lemon. Immediately the mood switches to the comedy of "The Teeth of Despair" and the way in which an ingenious but insufficiently worldly cadre of professors fails to win the world, and "Jury-Rig," which converts the old one about the marooned aliens into near-slapstick.

Then a couple of fantasies for leavening: "Miss Buttermouth," who is in touch with the future through the past and Mother Honeywell's Foundation of Supernal Light, and "Where Do You Live, Queen Esther?" which is not one to read at night. There is almost as much concentrated chill in "The Unknown Law," a calm, perfectly straightforward tale of a little way in the future which compresses into a few pages a thought as big as the one that made "Seven Days in May" or "Fail-Safe."

Finally, there is the story entitled "The Singular Events Which Occurred in the Hovel on the Alley Off of Eye Street," which is in *no* way like Dunsany, and *is* science fiction of—if you like—parallel worlds, and begins: "In 1961, the year when the dragons were so bad . . ."

Hoo boy!

**THE VIEW FROM THE STARS**
*By Walter M. Miller, Jr. • Ballantine Books, New York • No. U-2212 • 192 pp. • 50¢*

This collection contains nine short stories and novelettes by the author of the great "Canticle for Leibowitz." Four of the stories originated here when Analog was Astounding Science Fiction, in 1952 and 1953. All four have been in anthologies.

The best—and best-known—is "Crucifixus Etiam," which you may recall as a pitilessly realistic story of a laborer on Mars, an artificial lung built into his body, as he gradually comes to the realization that he can never live anywhere else, nor ever see the pleasanter world he is building. It was anthologized twice the year after it appeared, and again in an English collection.

"Blood Bank" is even grimmer in its basic idea—one that can't be explained without giving away the answer to the puzzle its hero is trying to solve. He has fired on a mercy ship from Earth, carrying surgical spare parts to a world in trouble, and must justify himself in his own eyes. Apart from the puzzle, the glimpses of radically different cultural values on different worlds is a vigorous and effective anticipation of what Cordwainer Smith is doing today.

"Dumb Waiter," the third from Astounding, is almost a stereotype of an ASF story of that period. A



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computer-run city is trying to carry on business as usual, though its human population is dead or has fled a nuclear dusting. But there is nobody to change its programming to match the new situation. How to do it, and make the automatic city again serve man, is the hero's problem.

Number Four, "The Big Hunger," is a pretty slight filler on the question: "Why do men go to the stars?"

Of the other stories, "Big Joe and the Nth Generation" is another problem story, harsh and ingenious. It could even depict a Mars that has briefly reached the condition that was being created in "Crucifixus Etiam," then slipped back into barbarism. A young thief finds a way past the savage robot protector of the nuclear installation that will restore the planet's vanishing atmosphere, and starts his world on the way back to rational civilization.

"You Triflin' Skunk!" is the story of "The Midwich Cuckoos" told earlier and in an entirely different way. The "man" from space has impregnated one Southern cracker-woman rather than a whole village, but his purpose is not very different. What is different is what she does and how she does it when he returns to claim his son.

"The Will," on the other hand, is slight and sentimental and totally unlike the tough plots I have described. An incurably sick child finds a way to save himself when present-day science gives up. "Anybody Else Like Me?" offers a black variation on the story of the telepaths who discover each other. And "I, Dreamer" is an early story of the philosophical and psychological problems of what are now called cyborgs—robots controlled by human brains built into them as part of their mechanism.

Why did these stories have to wait fourteen years to be collected?

**THE NIGHT OF THE WOLF**
*By Fritz Leiber • Ballantine Books, New York • No. U2254 • 221 pp. • 50¢*

Three novelettes and a short story (the latter published here in 1944 as "Sanity," the others in various magazines, under other names, between 1950 and 1962) are given a linking theme and made part of the chronicle of the League of Sanity. It really wasn't necessary, and I liked the author's original titles better.

"The Lone Wolf" (originally "The Creature from Cleveland Depths" in *Galaxy*) opens the book. It shows us a near future America in which the cities have gone underground, leaving a few mavericks and misfits on the surface. Gusterson, one of the latter, serves at times as an idea man for the subterranean promoters. His half-joking suggestion for a "tickler," an automatic secretary that can ride a man's shoulder and remind him of errands and appointments, is converted by



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not very slow degrees into an Old Man of the Sea that degrades men and women to automated biological mechanisms.

But nuclear war does come, most of the Midwest becomes a radioactive desert whose ruins are peopled by warped and mutated individualists conditioned to murder, and "The Wolf Pair" (alias "The Night of the Long Knives" in *F&SF*) follows three people who for circumstantial reasons do not cut each other down, and who suggest a way in which mankind may struggle back to sanity.

The promise is not fulfilled, and "Crazy Wolf" ("Sanity" when it was in Astounding more than twenty years ago) shows what follows as insanity becomes the norm, and the adjusted, balanced mentality of our aspirations has become the psychosis of the new world. This is one of the stories that almost everyone remembers, and almost nobody can name, though most people would attribute it correctly to Fritz Leiber.

Finally, "The Wolf Pack" ("Let Freedom Ring" in *Amazing*) brings us some centuries later to an era of stability and prosperity, when the pressure of overpopulation is relieved by sending young men to slaughter each other in the name of Man. Normsi, the hero, is scheduled for death and rebels. In the end, the members of the League of Sanity are "keepers in the violent ward" of human civilization.

Every one of these stories did and can stand alone. They are black irony as only Fritz Leiber can present it, far better to my taste than the prize-winning "Wanderer." Leiber has not forced the continuity, but left it to suggest itself, with the help of brief introductions. I don't think the association adds anything that wasn't in the stories in the first place.

## QUEST OF THE THREE WORLDS

*By Cordwainer Smith • Ace Books, New York • No. F-402 • 174 pp • 40¢*

This book ties four stories which have appeared recently in other magazines—"On the Gem Planet," "On the Storm Planet," "On the Sand Planet," and "Three to a Given Star"—together into a chronicle of the vengeance of Casher O'Neill, wanderer among the very strange worlds of "Cordwainer Smith's" indescribable future. They are—it is—a part of his intricate tapestry of a universe that grows more and more real as we see it through different eyes, at different times. It does not, however, have the impact of some of the best single stories, such as "Alpha Ralpha Boulevard" and "The Dead Lady of Clown Street."

Casher O'Neill was the nephew of the corrupt, decadent dictator of Mizzer, the Sand Planet. He betrayed his uncle to revolutionists for the sake of his world, only to see the revolution become an even more



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horrible dictatorship. Exiled, a fugitive, he is roaming the starways to find wealth enough and weapons to bring Colonel Wedder down in his turn.

We see him first on Pontoppidan, the Gem Planet, whose strange geology has strewn its surface with fabulous gems but left little or no air or food. And there, in the midst of the ultimate in artificiality, he encounters an immortal horse and finds a way to make it happy. Then, on the Storm Planet, Henriada, another dictator employs him to kill a young girl, one of the underpeople, T'ruth, fabricated from a turtle to serve man forever. This is the best of the episodes.

From T'ruth—from the personality that has been embedded in T'ruth—Casher obtains the weapon that will free his own world. He returns to Mizzer, to his mother and grown daughter, only to find them all too human, and confronts Colonel Wedder to find him human enough. And then, in a final perplexing episode, he travels across the bleak deserts of the Sand Planet, to the headwaters of the Twelve Niles, to cities as strange and as allegorical as any in "Pilgrim's Progress," to the place back of beyond where an old, old religion with its roots in Christianity is still understood.

But the book does not end with the end of Casher O'Neill's quest, for we are plunged back into space, where a strange trio of people who are not people, Folly the womanship, Samm the metal man-giant, Finsternis the great mechanical cube, race to destroy a race whose telepathically driven hate is disturbing the balance of the Instrumentality. This little story, too, tied to that of Casher O'Neill only incidentally, is evidently to be a key that will unlock still other treasure houses in Cordwainer Smith's universe, the strangest ever made.

## *Reprints and Reissues*

### THE THREE STIGMATA OF PALMER ELDRITCH

*By Philip K. Dick • Macfadden Books, New York • No. 60-240 • 191 pp. • 60¢*

It is by no means "The Man in the High Castle," but it is wild and different. It was a 1964 hardback.

### COMMANDER-1

*By Peter George • Dell Publishing Co., New York • No. 1430 • 251 pp. • 75¢*

By the author of "Red Alert," which was metamorphosed into "Dr. Strangelove." A military opportunist takes over in the world after the bombs have fallen.

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**EDITORIAL**
*continued from page 7*

eras for one cave-painted star map dated 100,000 years ago!

We don't know which way the spinning spiral galaxies spin. With a map of Andromeda M-31 as it was 100,000 years ago, we might be able to know. Our problem now is like trying to determine, from a one-microsecond flash exposure of a spinning wheel which way it's rotating; with an exposure that short, the photograph shows it perfectly motionless. Do the spiral arms lead the rotation—or trail behind?

As little as twenty-five years ago, Science knew that only gravitational fields were important in governing galactic matter—that the Sun's behavior was governed by gravitational fields and atomic forces alone.

They didn't know the Solar Wind existed, and had no idea that the colossal explosions known as Solar Flares—with energies running into many million hydrogen-bomb equivalents—were the result of local *magnetic* field collapse. Nor did they realize that the galactic magnetic fields, though rather low in intensity, represented a quantity of energy so stupendous in total that its mass under $E = Mc^2$ represented an appreciable fraction of the total mass of the Galaxy!

In other words, as little as twenty-five years ago, Science was completely unaware that forces *they already knew about*—magnetic fields—had immense consequences they had never considered.

I visited the National Magnet Laboratory at M.I.T. a few weeks ago—the greatest magnetic field research laboratory on the planet Earth, as of now. They have a variety of extremely high-field magnets—one of them alone, when in action, consumes ten percent of the total power of the City of Cambridge, Massachusetts!—for continuous operation, some designed to be shock-excited to even greater intensities by condenser-bank discharge, and some of the superconductive niobium-tin coil type. They can, temporarily, reach magnetic field intensities as high as a million gauss; most of the work done is in the range at or below 200,000 gauss.

The atom-smashing results of high-voltage led, a generation ago, to the development of super-high-voltage electrical machines—the Van de Graaff generators, the cyclotrons, synchrocyclotrons, and linear accelerators—we know widely today.

Physicists from all over the Earth come to work with the super-magnets at the National Magnet Laboratory at M.I.T. (The *facilities* are nonclassified, and open to "the public" of scientists; what *results* U.S. scientists obtain in their studies *is* classified many times.)



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But Science has actually explored magnetic field phenomena about as slightly as they had explored high-voltage fields back in 1928. Then, the Cockcroft-Walton High Voltage machine, with its piled-up high-voltage transformers-and-rectifiers was The Thing for high voltage—they could get 250,000 to 1,000,000 volts. It was an ingenious gadget—but pretty primitive in modern terms.

The National Magnet Laboratory is, in magnetics, about equivalent to the Cockcroft-Walton machine. The equipment is basically primitive, there is nowhere near enough of it, and the field-intensities we can achieve as of now are inadequate. We need to invest a few billion dollars in building up a *real* magnetic-field device—but the electric machines, the synchrocyclotron and linear accelerator machines are currently the center of scientific interest—the current fad in research science, and they get the money and attention.

Present a gigabuck check to the team at the National Magnet Laboratory, and right now they wouldn't know what to do with it—we don't now know how to go from a short-peak burst of one megagauss to a sustained (for say 0.01 second, which would be long enough for lots of critical work using modern instrumentation) field intensity of 100 megagauss, for instance. We're too ignorant.

For one thing—the electric automobile may not be based on storage batteries when it comes; it may be based on energy stored in superconductive magnet coils. Those solar flares are rather convincing evidence that truly stupendous energy can be stored in magnetic fields!

While we are so ignorant of magnetic possibilities—with our science only three hundred years old—and with absolutely no knowledge whatever of the nature of inertia and gravitic fields—yet the Professional Scientists can assert with absolute certainty that no race, anywhere, can possibly have a workable interstellar drive that can outspeed light.

I've been in the science-fiction business as author and/or editor longer than most of you readers have been alive. I started writing science fiction as a freshman in 1929. (Immediate goal: I wanted a new Ford, and my father had a sensible attitude on the matter. "I pay your necessities, such as tuition and board and room. Luxuries you earn for yourself!") For the ensuing thirty-eight years, I've been in the position of being told what nonsense, impossible, fantastic pseudo-science I dealt with, and I've been told it consistently, unremittingly, and also currently for that whole period. Any of you born after January, 1930 when my first story was published, missed the full impact of the sneers at science



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fiction; I've gotten them because I was labeled as a science-fiction author-editor.

The essence of the diatribe was "We *know* things like interplanetary rocket ships are physically impossible. Oh, yes, there's energy in the atom, but it can't be released by any human manipulation—we have to wait for it to come out spontaneously, or allow the impossible-to-human-achievement forces of a star break it out. Commercial atomic power plants are absolutely impossible, and this we know."

Today those same pundits *know* interstellar travel is forever impossible because it must forever be impossible to reach or exceed light-speed.

For a Science that's only just discovered that galactic magnetic fields are important, and that some atoms can be made to fission on demand, to speak so authoritatively of what races $10^{nth}$ years older can and cannot do seems to me a most remarkably arrogant attitude.

Particularly so in view of the very fact that Science has never made any serious effort to study phenomena that human beings exhibit—the *psi* functions such as dowsing, telepathy, clairvoyance, and telekinesis. Dowsing, clairvoyance and telepathy quite evidently depend on some communication channel that is *not* detectable by electromagnetic means. It is known to show characteristics that do *not* conform to the inverse square law characteristics of electromagnetic forces. Moreover, trans-temporal clairvoyance—either precognition or clairvoyance of the past—shows evidence of some achronic communication channel. Now maybe the impulses travel only at the speed of light, and will take fifty years to get here, but if you have precognition and can tell what they're going to say when they do get here . . . does the message travel only at light speed?

The poltergeist phenomenon—things flying around through the air—is familiar; it happens somewhere in some newspaper-reported area of Earth about a dozen times a year. Characteristically, objects rise up suddenly, and start flying around—usually to crash with damaging force against walls or windows. Stones from outside bombarding a house—vases, statuary, inkwells flying around inside a house. The phenomenon is usually associated with a highly tense adolescent.

If a teen-ager can dream solid objects into flying around, and no scientist has an explanation of how it happens—maybe there are still a few fundamental facts of this Universe that Professional Science doesn't know all about yet. Facts that might make a most excellent drive system for at least interplanetary vessels. The Saturn V booster replaced, perhaps, by a selected team of one hundred fifty slightly neurotic teen-agers? Or possibly a mechanism some engineering team works out after accepting



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that poltergeist phenomena *do* happen, and figuring out how to duplicate it.

Science has denied ball lightning for years because they couldn't explain it. The Arrogance of Ignorance.

They continue to deny the existence of dowsing, despite its common and widespread use in engineering practice. They continue to deny that the poltergeist phenomenon exists, despite its common and widespread appearance, all over the world, many times every year. Poltergeists are more common than hurricanes: the hurricane can't be explained by scientific meteorology either, but Science is forced to accept it simply because one covers so immense an area, is a very immediate and impressive force to so huge a number of unscientific laymen who refuse to deny what is scientifically impossible, that the scientist has to admit the damnable things exist.

The poltergeist is directly experienced by such a small number of people—a family, or the occupants of one building usually—that its existence can be ignored.

If human beings started evaporating away—just disintegrating totally and vanishing, over a period of five minutes, say—science could deny it happened, because a very minute percentage of the population would actually witness the event. And scientists always have projects they're dedicated to and fully tied up with. They don't want to drop what they know is important to tackle something they aren't interested in; deny it exists and the man pulling on your elbow will go away and let you go on with what you've decided is *important*.

Neil Ruzic, in his book "The Case For Going To The Moon," points out that many scientists are opposed to space research mainly on the basis that if that space research were discontinued great quantities of money would then be used more sensibly—on *their* area of research, which any sensible man knows is far more valuable. (If the man didn't feel that way, he wouldn't have devoted his time and effort to it!) The botanist seeking to determine how many different species of plants live in the Amazon valley; the anthropologist studying the subtle and fascinating differences between the Mubuju tribe, and their rivals—the Mubuju *knows* that's far more important than trying to measure the magnetic field of the Moon. And is convinced that if only they didn't "waste" all that money on foolish space research, anthropology would get its proper monetary support.

Such men are *not* selfish; it's a deep and sincere conviction that what they are doing is *important*. The anthropologist studying a splinter group from a splinter tribe of Central American Indians isn't in there because he wants greater



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luxury and hedonistic pleasures for himself; he's in there because of a dedication to the importance of the work that overrides misery of wet heat, malaria, yellow fever, ticks, snakes, scorpions, foul water, unfriendly and suspicious tribesmen, and unknown diseases. He wants more money not for greater luxury, but for better tape recorders, movie cameras and more film, a few helicopters to make transportation go from the practically-impossible-take-two-months level to possible-in-twelve-hours. The way to hold the friendly attention of the tribesmen is with antibiotics and skilled surgery, but antibiotics don't like wet heat for two months travel. And surgery sometimes desperately-right-now needs special instruments and/or anesthetics. That helicopter is necessary—much more important than knowing the texture of the rubble on the surface of the Moon.

For the same basic reason—the scientist has already dedicated himself to an area he knows is important—they don't want to be turned from what they are investigating to study something else.

If a life-scientist can't accept that the texture of the surface of the Moon is important—how can you get a physicist to turn aside from his pursuit of the next decimal place to study why objects lift up, float through the air, and smash against a wall whenever young Tommy gets annoyed about something?

This is the Area of Ignorance protected by the intense and dedicated study of the Area of the Known.

Every NASA scientist knows that the way to get to Mars is to build bigger and better rockets. Not by turning aside and trying to understand how disturbed teen-agers move things through space without physical contact.

And they *know* interstellar travel is forever impossible, because the mighty science developed during the last one-millionth of a Galactic Year says so.

If, sometime soon, a technique of suspended animation is found, and some crew starts out in a nuclear rocket ship bound for Alpha Centaurus, and due to get there in one hundred years—don't volunteer.

If you do, you'll arrive to find cities and industries built by the descendants of men who didn't go off half-cocked, in the conviction that there was no way but rockets. They arrived twenty years after you took off, using apportation developed into commercial matter-transmitters. Or maybe by gravito-magnetic space-time tunneling-exchange, whereby a mass of anything, anywhere, can be instantaneously exchanged for an equal mass of anything else anywhere else.

Or, of course, by something simple and old fashioned like a hyperspace drive.

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The Editor.



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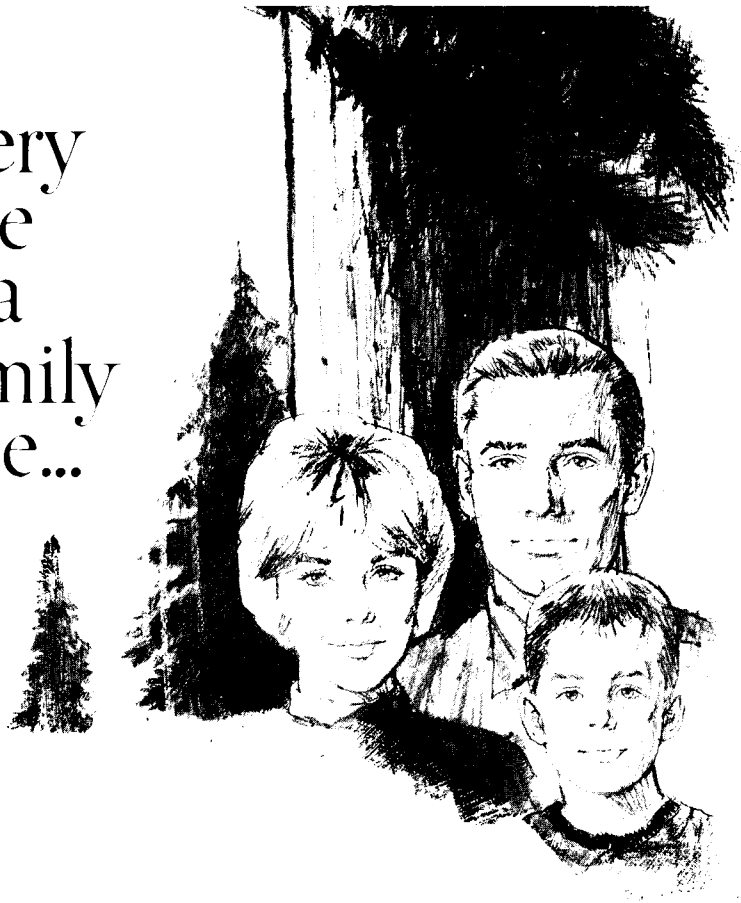

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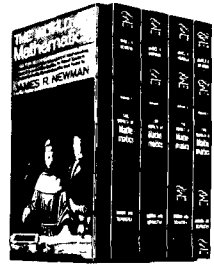


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